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PHILADELPHIA ALMSHOUSE, 1840.

PHILADELPHIA HOSPITAL

REPORTS.

VOLUME I.—1890.

EDITED BY

CHARLES K. MILLS, M. D.,

MEMBER OF THE NEUROLOGICAL STAFF.

PHILADELPHIA:
DETRE & BLACKBURN, 35 NORTH SEVENTH STREET.

Department of Charities and Correction

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PREFACE.

Very few of the hospitals of this country have published volumes of Reports similar to those which have reflected great credit upon such institutions as Guy's and St. Thomas' of London, the Royal Infirmaries of Edinburgh and Aberdeen, La Salpêtrière of Paris, and many other hospitals in Europe. In 1868, a volume of Pennsylvania Hospital Reports was published, and succeeding annual volumes were promised, but so far have not been forthcoming. We are among those who believe in such publications. A representative volume of Hospital Reports is a work of importance to the hospital itself, to its medical board, and to the profession and community at large. While the number of copies issued is necessarily limited, if the book is judiciously distributed to physicians, to journals and periodicals, to hospitals, and to general and medical libraries at home and abroad, it must reach a large circle of interested readers. It serves to encourage the members of the medical board of the hospital to scientific and humane work, that the records presented may be creditable to the institution and to themselves. The history and reminiscences of every great charitable institution like the Philadelphia Almshouse and Hospital should, moreover, be placed upon record for the guidance and instruction of present and of future generations. Such a record must contain much of interest with reference to the development of city charities, to the methods and character of medical instruction, to the progress of practical medicine, to the health and mortality of the community, and to the lives of physicians and philanthropists. Unusual space has been devoted to matters historical, reminiscent and descriptive, but in an initial volume of Reports of a public institution its history should be, at least, carefully outlined.

It was intended to publish lists of the members of the governing boards, and of the executive and medical officers of the almshouse and hospital, from the earliest date to the present time; and such lists have been prepared and are measurably complete, including boards of guardians and the department of charities and correction; stewards, superintendents, hospital wardens and apothecaries; the visiting medical staffs; resident physicians, and graduates of the training school for nurses. It was found, however, that such tables would require many pages in a volume already extended to unusual limits; and for this reason, and also because it will be possible by postponement to add to the completeness and accuracy, and therefore to the value of these lists, we have concluded to withhold their publication to another volume. We would be glad to receive from all sources information that would assist in the perfection of this important work.

The articles on medical subjects are without exception founded upon work done in the Philadelphia Hospital, which makes the volume strictly representative.

The thanks of all who are interested in the welfare of the Philadelphia Almshouse and its Hospital are due to the mayor, to the finance committee of city councils, and to the members of councils generally for the appropriation which has enabled this book to be published. In its preparation much valuable assistance has been received. To the president of the board of charities and correction, Hon. Robert Laughlin, to the members of the board, and to Mr. George Roney, superintendent of the almshouse, we are indebted for the active interest and many courtesies shown. We are also under obligations for assistance to Mr. Edwin Palmer, secretary of the bureau of correction; to Mr. Robert C. Floyd, secretary of the bureau of charities; to Dr. Daniel E. Hughes, physician-in-chief of the hospital; to Drs. D. D. Richardson and William H. Wallace, formerly physicians-in-chief to the insane department; to Mr. Mahlon H. Dickinson, president, and Mr. Cadwalader Biddle, secretary of the board of public charities of Pennsylvania; to Drs. Alfred Stillé and Dr. James Tyson; to the Rev. Jesse Y. Burk, secretary of the University of Pennsylvania, and to Mr. James G. Barnwell, librarian of the Philadelphia Library. Dr. Roland G. Curtin, president of the medical board, has not only contributed much valuable material, but has taken a continuous interest in editing the entire work.

In the examination of written minutes and other documents, in the correction of proof, and in many details, we have been greatly assisted by Dr. M. Imogene Bassette, Dr. J. W. McConnell, and Mrs. F. Gray. To Miss E. A. Atkinson we are indebted for valuable references.

Doubtless, in spite of care and watchfulness, errors and inaccuracies have found their way into the volume, but the editor trusts that the fact of the work having been done in the midst of other exacting labors, will serve to excuse many shortcomings. By an unaccountable oversight an error was left in the first page of Dr. Agnew's history, where he speaks of the Almshouse of 1767 as located between Eleventh and Twelfth instead of between Tenth and Eleventh streets.

At various times pictures of the different almshouses in Philadelphia have been taken. We have not been able to procure a view of the almshouse of 1732. One of the old Friends' Almshouse is given on page 81, opposite the description of that institution, which was situated on Walnut street above Third, and was occupied from 1729 to 1841. This is from drawings of the late John Skirving and William L. Breton, and was drawn and engraved expressly to illustrate Westcott's History of Philadelphia in the Sunday Dispatch.

In Watson's, and in Scharf and Westcott's Histories are to be found views of the institution at Tenth and Spruce streets, opened in 1767. One in Watson's Annals, vol. iii, page 332, represents it without the central building, which was evidently, therefore, erected later than the two L-shaped extremities. In this volume, opposite page 82, where this almshouse is described, is a picture of it as completed. This has been reproduced from a certificate which was formerly granted to students of medicine who attended the practice of the physicians of the infirmary and almshouse. We have seen one of these certificates in possession of Dr. James Hendrie Lloyd, a member of the neurological staff of the hospital, which was given in 1824 to his grandfather, Dr. William Scott Hendrie, then a student of medicine from New Jersey, in the University of Pennsylvania. Another, framed, is at the hospital.

The frontispiece is a view of the institution as it was in 1840, reproduced from a lithograph by J. T. Bowen, of 94 Walnut street, Philadelphia. It shows the almshouse with fields and meadows in front, and a bridge, probably the old Market street bridge, above.

Opposite to page 98, is a bird's eye view of the arrangements of the building within the present almshouse enclosure, prepared by E. Hexamer, 419 Walnut street, Philadelphia, and lithographed by F. Bourquin, 31 South Sixth street, Philadelphia. This is accompanied in the original by a diagram, detailing the manner in which the numerous buildings and departments represented are occupied.

CHARLES K. MILLS, M D.,

Chairman of Editorial Committee
of the Medical Board.

1909 Chestnut Street, Philadelphia.

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THE MEDICAL HISTORY OF THE PHILADELPHIA ALMSHOUSE.

BY D. HAYES AGNEW, M.D.[1]

GENTLEMEN:—I am before you to-day by appointment of the medical board, to discharge a service preliminary to the opening of the annual course of clinical lectures in the hospital. For some time I have been engaged in gathering material from a great variety of sources, written and unwritten, to secure the history of the Philadelphia Almshouse from oblivion, if not utter loss. The field is extensive and interesting, though its paths have been much obscured by the decay of time. So interwoven is it with the secularities of Philadelphia, that no history of this city, civil, political or professional, would be complete without it.

The medical history of the Philadelphia Almshouse covers a period of one hundred and twenty years, during which time it has been located in three different positions. First, on the square between Spruce and Pine and Third and Fourth streets, at that time called the Green Meadows; next on the square between Spruce and Pine and Eleventh and Twelfth streets, long known

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[[1] Dr. Agnew was a member from 1858 to 1865 of the surgical staff of the Philadelphia Hospital. He was also curator of the museum from 1861 to 1867. This "History" was a lecture delivered at the opening of the clinical lectures at the hospital, October 15, 1862, and records the most important medical facts connected with the institution to that date. It was published by request of the board of guardians, and was printed by Holland & Edgar, 51 North Eighth street, Philadelphia; but it has long been practically out of print. Dr. Agnew has kindly given his consent to its re-publication in this volume of Reports to which it forms a fitting introduction. A few notes have been added and a few corrections made, but it is reproduced nearly as originally published. The notes added are placed in brackets. In the historical and miscellaneous memoranda, to be given later, will be found some addenda, relating to facts occurring within the period covered by Dr. Agnew, but not mentioned by him.]

The following prefatory acknowledment is made by the author: "I am indebted to the board of guardians for free access to the records of the house; to Drs. Girvin and Benton, resident physicians of the Philadelphia Hospital, for valuable assistance in searching these records; to Mr. Samuel Hazzard, secretary of the Philadelphia Historical Society, for information which the works of that library supplied; to Mr. Mickley, whose rare collection of old works is unsurpassed; to Professors Jackson and Hodge, and Drs. Gerhard and Stillé, whose acquaintance with matters pertaining to the subjects treated on, proved of much consequence in enabling me to ascertain facts connected with subjects on which written documents were silent, and to Mr. Cavender, whose industry in arranging the records is most praiseworthy."

as the Society Grounds; and last, on the west side of the Schuylkill river, where we are assembled to-day.

This, gentlemen, is the oldest hospital on this continent.[1] Proud, in his history of Pennsylvania, a work justly esteemed for its research, says the Philadelphia Almshouse was of later date than the Pennsylvania Hospital, the origin of which was in 1753. This is a mistake. In 1742 it was fulfilling a varied routine of beneficent functions in affording shelter, support and employment for the poor and indigent, a hospital for the sick, and an asylum for the idiotic, the insane and the orphan. It was thus dispensing its acts of mercy and blessing, when Pennsylvania was yet a province and her inhabitants the loyal subjects of Great Britain, more than twenty years before a school of medicine was founded in this city, and indeed before most of the great events which have given the American people a historical importance among nations of the earth.

Who were the first physicians appointed to attend the Philadelphia Almshouse, and at what period were they assigned to this duty? These are questions, so far as I know, which cannot be ascertained either from record or tradition. In 1768, and probably much earlier, Drs. Cadwalader Evans and Thomas Bond were the medical appointees; and on the 18th of May, 1769, we have a formal announcement of their re-election. The institution at this early period contained two hundred and forty-six inmates, and each of the medical attendants received fifty pounds per annum, and were required to supply such medicine as was needed for the sick.

Dr. Bond studied his profession at home and abroad; was the first surgeon and physician to the Pennsylvania Hospital, in which institution as early as 1769 he delivered lectures on clinical medicine and surgery. Dr. Cadwalader Evans was one of the first pupils of Dr. Bond. In order to finish his education he sailed for Edinburgh, but the vessel while on the voyage was taken by a Spanish privateer and carried to Hayti, where he remained between two and three years before he was able to renew the voyage for the Scotch metropolis, then the great centre of medical instruction. It was after his return from Scotland he became officially connected with the almshouse.

[[1] Prof. Wm. Osler, formerly of the medical staff of the hospital, now of Johns-Hopkins Hospital, Baltimore, in answer to queries, writes the editor that the Hotel Dieu, of Montreal, was founded in 1642, and possibly some of the Mexican hospitals are older yet.]

That the medical police of the house was not of the strictest character, may be inferred from the fact that a number of persons were in the habit of visiting the institution, assuming to be doctors, and volunteering their services to the unfortunate sick. This irregularity continued unquestioned for some time, until many of the patients had suffered very great injury, and no small amount of discredit brought upon the management of the house. A resolution was at length introduced and passed by the board of managers, permitting no one to prescribe except the regular appointees, and requiring them to visit the hospital oftener and with more regularity.

At this period the invaluable discovery of Jenner was unknown to the medical world, and the only method capable of diminishing the horrors of small-pox was the induction of the disease by inoculation, after careful previous preparation of the system for its reception. Singular as it may appear, there were many who regarded the practice not only improper but positively sinful. I remember a few years ago, whilst sitting in one of our city churches, taking up a Bible which bore on the fly leaf the inscription, over the signature of the owner, "opposed to corporation and inoculation." In 1771 the institution contained a number of destitute children who had never had an attack of variola. For their own as well as the safety of the other inmates, Dr. Evans called the attention of the managers to this fact, and proposed that they should be protected by inoculation. The board acquiesced in the suggestion, provided the house should be subjected to no expense other than the medicine required for their subsequent treatment. Twenty-one of these children were separated from the general mass for this purpose, all of whom perfectly recovered. In the month of February, 1778, there were forty others subjected to a similar course with a like result.

In 1772 a proposition was made to the managers to extend the usefulness of the house by the admission of students, and an increase in the number of medical attendants. The proposition included an offer of gratuitous service, the institution being only at the expense of purchasing the medicines required for the sick.

On the 25th of March, 1774, the desired addition to the medical corps was effected by the election of Dr. Adam Kuhn, professor of materia medica and botany in the Medical College; Dr. Benjamin Rush, who held the chair of chemistry in the same institution; Dr. Samuel Duffield, one of the ten alumni who received the first medical degrees conferred in this country (21st June, 1768), and Dr. Girardus Clarkson. An additional physician, Dr. Thomas Parke, was added to the number March 25, 1774. This probably is the origin in this country of gratuitous professional service to public institutions which has become so general at the present day, and which I conceive operates disadvantageously to both he who dispenses and he who receives. To advocate such a sentiment brings no odium on the profession. It requires no argument from me to vindicate our calling from the charge of selfishness. It is not saying too much when we venture the assertion, that among the professions there are none which contribute so largely their free-will offerings for the relief of human suffering, or which furnish so many examples of disinterested and unselfish benevolence as our own.

I cannot refrain here from relating an anecdote somewhat apropos to this subject. The late professor Chapman, while discharging the clinical duties of his chair in the University of Pennsylvania, had brought before him a poor Irish woman who had applied for advice. The doctor made a careful examination of her case, ordered a prescription to be made out, and bade her in a kindly tone to retire. With great simplicity of manner she tendered compensation, which, on being declined, in an air of mingled surprise and doubt, she exclaimed, "Take the trifle, my jewel, for its yourself must be after living." "Ah! my good woman," said the doctor in his own inimitable way, "we doctors are a very peculiar people, we look for our reward hereafter."

To every American the year 1776 is full of historic importance. A period when our revolutionary sires, men of large hearts, broad minds and self-sacrificing spirits, were freely spending their blood, treasure and wisdom to establish a national independence and government, which their children are to-day, in a spirit of unparallelled venture, rending to pieces.

On the 5th of September, 1776, the "Council of Safety," through its president, Thomas Wharton, Jr., addressed a note to the managers of the Bettering House,[1] as it was often styled, asking per-

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[[1] The term "Bettering House," in times gone by, was frequently applied to the Philadelphia Almshouse, and probably to institutions of the same kind; occasionally it is still used by the aged; in my boyhood I remember often hearing it. The most probable derivation of the word is from the German Bettler-Haus or Beggar House. The word probably took its start among the German communities of Pennsylvania if this is its origin. In form it would seem to refer to the fact that the almshouse is an institution to which the poor go to be cured, or helped, or to have their condition made better. "Betterment," meaning improvement or making better, is not obsolete, although infrequently used. One definition by Webster of "Bettering House" is "a house for the reformation of offenders," but this is an incorrect definition as applied to the almshouse.]

mission for the Quarter Master [Deputy] General to quarter in the institution a number of the Continental militia who were very sick with dysentery. This was strenuously opposed both by the managers and medical attendants, as calculated to endanger the health of the house. They had on former occasions suffered greatly from the prevalence of putrid sore throat and small-pox; and had been compelled to move many of the cases to private lodgings in order to stay their fatal progress; and in justice to the helpless and infirm inmates—most of whom possessed little ability to resist disease—they naturally objected to the introduction of an element of danger, such as malignant dysentery, the scourge of camps would constitute. As all military governments tend to despotism, the application was merely to maintain a semblance to the legitimate forms of propriety. This is quite natural and proper, when public necessity becomes paramount to personal considerations, and accordingly the council ordered Col. Francis Gurney, on the 23d of October, to take military possession of the almshouse for the sick soldiers. No alternative was left but to make the best of the unpleasant position forced upon them. The poor were transferred to the west building, and the soldiers were placed in the southeast wing of the House of Employment, arresting entirely the industrial operations of the establishment. They retained possession of this apartment until the British took possession of the city in 1777, when they were removed.

This removal, however, in no way relieved the managers from embarrassment, as shortly after, in the month of October, the entire east wing was appropriated for the sick belonging to the King's troops under General Howe. For fear they might in like manner appropriate the west wing also, the managers waited on Joseph Galloway, to secure his influence with the general to prevent an occurrence which must entail so great distress on the poor—its inmates at this time being of the most helpless description.

Joseph Galloway was a lawyer of distinction and wealth, speaker of the Provincial Assembly. In our struggle he took the royal side of the question, and became, under the sanction of the British commander, the general superintendent of the city. When, however, the cause of the colonies brightened, and Howe was obliged to evacuate the city, he was compelled to follow his master, his estates were confiscated, his fortune melted away, and he was obliged to accept a secretaryship to the commander-in-chief. It was therefore on account of his royal proclivities the managers sought his aid. They were referred by him to Dr. Stuart, surgeon general of the British Military Hospital, who promised, unless an emergency should arise, to accede to their request.

It was but a short time after this, in November, at 9 o'clock at night, when the poor were almost destitute of food, the barrack master called on two of the managers ordering them to clear the house for the reception of the King's troops. The board met the next morning, and after short deliberation, refused to comply with the cruel request. On hearing their decision, the British official proceeded at once to remove the inmates—about two hundred in number—of miserable, decrepid, half starved creatures. As they would soon have perished exposed to the rigors of a November air, the managers succeeded in securing quarters for them, some in the Freemasons' old lodge, still standing in Filbert above Eighth street; some in the Friends Meeting House; and others in Carpenters' Hall, off Chestnut, above Third street, where they were maintained until the last days of June, 1778, when the invaders having left the city, they were removed back to their old home. The exposure and deprivation attending their ejectment, was followed by a heavy mortality, as only eighty-two of the original two hundred survived to re-enter their former quarters.

In 1777 Drs. Rush and Clarkson resigned their posts, and the three remaining members were requested by the board of managers either to occupy their term of service or to choose substitutes, the former of which they concluded to do. No alteration in this arrangement was made until the 29th of April, 1779, when a proposition was made by Drs. Glentworth, Jackson and Duffield to attend the sick of the institution, charging only for the medicines used in their treatment.

From the 25th of March, 1780, we may date the system of out door medical relief as a part of the benevolent operations of the managers of the poor. In order that such aid might be furnished, Drs. Hutchison and Wilson were requested to attend and prescribe for those who, though not inmates of the institution, were yet dependent on its resources for professional aid. From this small beginning, in which two gentlemen were able to meet all the demands of the city, have arisen eleven districts, requiring twenty-four physicians, who for a very small compensation dispense an amount of professional relief truly wonderful. In passing over the records of this department it is pleasant to find that, at one time or another, almost every name of note in the ranks of our profession is found among those who labored in this sphere of humble usefulness, and no doubt not a few of them laid the foundation of their future reputation, while thus engaged in visiting the sick poor in the secluded lanes and alleys of this metropolis. No man can long labor in such a field in daily contact with a class, whose sufferings are greatly increased by the absence of so much which serves in the more fortunate to alleviate the pressure of disease, without feeling all the sympathies of his heart unlocked and becoming a wiser and a better man.

On the 7th of February, 1781, Dr. Bond, who it seems had no connection with the house after the year 1779, being at this time medical purveyor of the United States Army, applied to the managers for the east wing of the building, which had shortly before been occupied by the board of war, to accommodate a number of British prisoners, who were very ill at that time in jail. This request was granted by his agreeing, on behalf of the government, to pay a monthly rent of one hundred dollars hard money. For some time after 1781, Dr. Samuel Duffield seems to have been the only physician attached to the institution, giving his attention, under contract based on his own proposition, to attend to all the inmates and find the necessary medicines, for the sum of two hundred pounds per annum. One of two things is evident, either the doctor was not fond of money or was fond of work.

At this time it was the custom to have the venereal cases and the violent insane treated at the Pennsylvania Hospital. In regard to the first, it was deemed necessary, in accordance with the current medical notions on the subject, to subject every case to a mercurial course, carried to the extent of salivation. In the Pennsylvania Hospital the accommodations for this were greater and more complete than those of the almshouse. In addition to the ordinary expenses of board and nursing, a fee was always charged against the almshouse by the physician under whose care the case had been treated. There is a record of two guineas for this object being paid to Dr. John Morgan, one of the two gentlemen who first established a medical school in America. In 1782 the General Assembly passed an act authorizing the managers to bind out all persons treated for venereal disease, until the expenses were liquidated from the proceeds of their labor. These expenses, it is presumed, averaged about twenty-four pounds, from that amount having been specified on the record, as the sum for which one binding had been made. Between the mortifying annoyance of the disease, the salivation of the doctors, and the limited apprenticeship, the worshipper at the shrine of Venus paid dearly for his whistle.

In 1788 a new organization of the medical department was made by the election of Drs. Samuel Duffield, Samuel. P. Griffits who subsequently became professor of materia medica and pharmacy in the Medical College of Philadelphia; Dr. Caspar Wistar, afterwards professor of chemistry and the institutes of medicine, and still later of anatomy; Drs. J. R. Rodgers, Girardus Clarkson, Michael Leib and John Morris. In less than a year (in April, 1789) Drs. Morris and Griffits, in consequence of their private business, tendered their resignations. Both of these gentlemen were popular, and although their official connection with the house had been short, the managers in accepting their resignations acknowledged, in a very handsome and complimentary manner, the value of their professional services to the house. The same month in which Drs. Morris and Griffits withdrew the medical organization was reduced to six members, by dropping Dr. Rodgers and electing Dr. N. B. Waters and Dr. William Shippen, the latter the founder of medical teaching in this country. On the 29th of March, 1790, the managers addressed a communication to these physicians, acknowledging the value of their services to the poor, and begging they would continue their several offices the coming year. This letter no doubt was intended to be antidotal, for only a short time before they had refused a very reasonable request of the medical attendants, which will receive its proper explanation when the clinical history of our subject is reached. One month after the whole body of physicians resigned, the institution losing the best medical talent in the city.

Shortly after this event, Drs. Duffield and Leib solicited an appointment to the house, and after their election, were required to become the purchasers of all the drugs consumed by the sick. The increase in the population of the Almshouse, together with the private engagements of these gentlemen, rendered it necessary for them to ask some assistance, for which object, Dr. Cumming, August 10, 1795, was appointed assistant visiting physician without salary.

Whatever may be thought of the credulity of the present generation, it is no less clear that the people of 1796 were not proof against charlatan imposition. Every age has had some crotchet on which to betray mental imbecility. The whale must have a tub with which to amuse itself. At the period above named, it was Perkinism or the cure of disease by metallic tractors. The most extravagant reports of extraordinary cures affected by this manipulation had been bruited abroad in advance of the doctor's arrival in Philadelphia. The eyes of the blind had been opened; the ears of the deaf unstopped; the lame man made to leap as a hart; and in fine, a universal catholicon for human diseases and infirmities had at length been discovered.

On the 27th of February the visiting committee of the house reported having witnessed several successful operations by Dr. Perkins with his metallic points, and had seen the grateful acknowledgments of many others who had been the subjects of his new method; that the hospital contained numerous cases which might be benefitted by his skill, and proposed that George Davis, one of the members of the board, be authorized to invite Dr. Perkins to attend the institution on the following Wednesday, at 10 o'clock, thus giving the other members an opportunity of being present during his visit. The doctor made his appearance on the appointed day, and managed so successfully to close the eyes of the sage managers as to secure from them the purchase of his patent for the benefit of the hospital; and this house to-day owns the exclusive right to practice in Philadelphia the cure of disease by metallic points.

Where is Perkinism to-day? That gigantic humbug, which overrun with unparalleled rapidity, towns, cities, villages, and rural districts at home and abroad, and was endorsed by three American universities. Gone to the tomb of the Capulets, where every other ism, system, and device of man, not resting on a substratum of truth, must sooner or later sink, never to be unburied except by the pick of some future fossilist, delving among the *caput mortuums* of exploded systems for specimens of human folly, either to adorn a cabinet or point the shaft of ridicule. That

Perkinism could not have proved very efficient in the Philadelphia Almshouse may be inferred from the fact that on the 20th of March the sick had become so numerous as to require an additional number of physicians to aid Dr. Duffield and his assistant in their labors. The gentlemen selected by the board were Drs. Samuel Clements, Jr., Wm. Boyce and Samuel Cooper, at a salary each of one hundred dollars annually. It would appear Dr. Cooper declined the appointment, and the corps remained without any substitute being elected. They were required to visit the hospital three times a week ordinarily, and oftener if the state of the sick demanded it; two were to attend together, and in case an operation was required the operator was to be selected by a majority vote.

In the fall of 1797 Dr. Pleasants died, and on the 23rd of December of the same year Drs. John Church and Thomas C. James, the latter subsequently professor of obstetrics in the University of Pennsylvania, were elected, the former to supply the vacancy occasioned by the death, and the other in the place unoccupied by Dr. Cooper.

Until 1801, there were no changes to notice, when on the 6th of April of this year, Dr. Boyce tendered his resignation, shortly after which Dr. Elijah Griffiths was elected his successor. In August, Dr. Duffield, who seemed to be a necessary appurtenance to the house, having been connected with it for twenty-nine years, was dismissed in consequence of having furnished a certificate admitting a patient with typhus fever into the institution. At this time there seems to have been very close police exercised by the managers over admissions, in consequence no doubt, of the recent epidemic of yellow fever which had desolated so many homes, and produced such wide-spread distress and consternation in the community. After the removal of Dr. Duffield, the number of medical attendants was increased by the election, on September 7, 1801, of Drs. John Proudfit, Philip Syng Physick, the father of American surgery, and Charles Caldwell, familiar to the present generation of medical men as the author of his own biography; a man unquestionably of remarkable intellectual force, combined, however, with such incongruous elements of character, as were calculated to defeat the best appointed plans of ambition. These gentlemen were to receive a salary of twenty-five pounds per annum.

In 1804 a very extraordinary event occurred in view of the very amiable nature of doctors in general. This was a quarrel among the physicians, originating mainly in a private difficulty between Drs. Caldwell and James. The dispute grew to such magnitude, that the managers, as the shortest way to establish the peace of the institution, on the 9th of January proceeded to the election of a new board, consisting of Drs. Philip Syng Physick, John Church, Elijah Griffiths, John Rush, Thomas C. James, Benjamin Smith Barton and Samuel Stewart; each of whom was to receive the old salary of twenty-five pounds, subject to all reasonable out-door calls. Dr. Rush declined the appointment, and on the 19th of the same month, Dr. James Reynolds was elected to take his place.

On the 17th of January, 1805, the same year in which he was elected to the chair of surgery in the University, Dr. Physick offered his resignation. Very soon after its acceptance, Dr. James Hutchinson was appointed his successor. The latter gentleman's name is associated with a modification of the Desault splint for fractures of the thigh. His service was of short duration, his resignation being recorded three months after the announcement of his election. During this year a difficulty occurred between the managers and Dr. Barton, in consequence of the latter declining to attend out-door patients. Their views being irreconcilable, the doctor was dismissed, and to supply the two vacancies now existing, Drs. J. Cathrall and Peter Miller were elected by the board.

It was also during this year Dr. Church died. His place was occupied by the brilliant but short-lived John Syng Dorsey, who in his brief career of professional life, occupied no less than three prominent positions in the medical department of the University of Pennsylvania—first, as an adjunct to Physick; then as a successor to Chapman on materia medica, and last, as a successor to Wistar on anatomy. The next change was produced by the death of Dr. Reynolds in 1807. After this event an additional physician was added to the corps by the election of Dr. Nathaniel Chapman to supply the vacancy occasioned by the death of Dr. Reynolds, and Dr. Joseph Parrish to make up the complement of the staff.

On the 17th of November, 1809, a resolution was introduced and adopted by the managers, constituting the medical officers of the Almshouse a medical board. They were to meet the first Monday of every month, at 4 o'clock, P. M., and report rules for the government of the hospital department.

The following year, 1810, furnishes us with the first instance, so far as I know, of a hospital in this country receiving a female resident physician. On the first of July, a Mrs. Lavender made application to be admitted to the institution as an assistant midwife, in order the better to perfect her education. Such a charming name as "Lavender" so overcame the physical senses of the members of the board, that they lost their intellectual senses and granted her petition. During my term of service in the winter of 1856, several women from the Female Medical College of this city were furnished with tickets to the clinical lectures without my knowledge. You may imagine my astonishment, when entering the lecture-room to discharge the duties of the hour, I saw seated on one side of the amphitheatre a number of these misguided creatures. I had selected for the instruction of the class that morning a series of cases all illustrating some disease of the genital organs; and as it was now too late to recede, I proceeded to operate for phymosis, and to exhibit and treat some blooming specimens of chancre. Notwithstanding there was a large number of male students present, and the personal exposure necessary for the conduct of the clinic, they never betrayed the slightest evidence of shame, but sat with the imperturbable indifference of primeval innocence. This I suppose some would consider praiseworthy and philosophical, but I confess it exhibited to me a perversion of character utterly below my preconceived views ever entertained of strong-minded women. The occurrence was never repeated, as I at once addressed a letter to the board, when their money was returned and admittance refused.

Two vacancies occurred in 1810, one by the withdrawal of Dr. Griffits and the other by the death of Dr. Stewart. To supply these, Drs. Stewart and Joseph Klapp were elected. On the 2d of September, 1811, Dr. Dorsey tendered his resignation, and on the 9th of the same month, was succeeded by Dr. Thomas Hewson.

The service of various gentlemen now connected with the house was so arranged that one portion were to attend to surgical and the other to medical and obstetrical cases. The surgical staff consisted of Drs. Cathrall, Miller and Parrish; the medical, of

Drs. Chapman, Stewart and Hewson. Between the managers of the Philadelphia Almshouse and Pennsylvania Hospital there existed, at this time, much unamiable temper as well as jealousy. Both were anxious to secure the patronage of medical students, and therefore stood in the attitude of rivals. To such a degree were the minds of the former influenced by these feelings that they were led to pass a resolution calculated to act prejudicial rather than favorable to the prosperity of their institution. This resolution rendered all the physicians and surgeons holding places in the Pennsylvania Hospital ineligible to an election in the almshouse. In 1813 this measure was reaffirmed, but from being associated with certain other matters drew out an opposition, the influence of which became sufficiently potential to secure its repeal. In 1814 Dr. Dorsey again became a member of the medical board, and it was to his personal influence that the meritorious poor, recovering from disease, were indebted for the house-carriage, purchased by the managers to afford to convalescents the benefit of exercise and fresh air.

In 1815, in consequence of the managers assuming to regulate the term of service of the medical board in a manner not agreeable to its members, Dr. Chapman resigned, and was succeeded on the 8th of May by Dr. Joseph Klapp. The obstetrical department having been placed exclusively under the control of Dr. James, its duties necessarily absorbed more time than was compatible with the proper discharge of other engagements, and at his request, on the 2nd of November, 1818, Dr. John Moore was elected associate obstetrician to the house.

In 1818 Dr. Dorsey, after a few days illness, terminated his mortal career in the 35th year of his age. By the death of Dorsey the profession lost one of its noblest ornaments; the institution a man who reflected honor on its hospital; the poor a compassionate and devoted friend. The place thus made vacant by the hand of death was filled on the 20th of November by Dr. Joseph Hartshorne, then among the leading practitioners of Philadelphia. Two sons of Dr. Hartshorne, enjoying deservedly high reputations as men of culture and position, perpetuate the eminence of their paternal ancestor in our midst to-day. Dr. Hartshorne's connection with the house continued until February 28, 1820, when an extensive and laborious practice compelled him to withdraw. On the same day in which his resignation was accepted Dr. John

Rhea Barton was elected, one of the most accomplished and ingenious surgeons of this city, although not now, it is to be regretted, engaged in the active duties of his profession.

It was during this year Dr. William Swaim, the manufacturer of a panacea which had acquired considerable notoriety, was allowed the privilege of administering his patent medicine to several patients suffering from specific ulcers, and with a degree of success which I believe secured unfortunately the endorsement of names high in the ranks of the profession. The large fortune amassed by the patentee of this medicine may be said, in a measure, to have resulted from the circumstances attending this experiment.

In February, 1821, Dr. Moore resigned, and Dr. Henry Neill was elected, first as assistant obstetrician to Dr. James, and afterwards in March to equal rank with his colleague. Very shortly after Dr. James, whose service to this charity extended over twenty-five years, declined any longer to discharge the duties of obstetrician, and on the 5th of March, 1821, Dr. Nathan Shoemaker assumed the labors of this department. This year the addition of two surgeons and two physicians to the medical board was sanctioned by the managers, which in connection with the resignations of Drs. Parrish and Rush, the same year, left four places to be supplied, to which Drs. William Gibson, George McClellan, Samuel Colhoun, and Wm. P. C. Barton were chosen—all men holding high rank among the magnates of American surgery and medicine.

During 1822 the leaven of discord again commenced working among the members of the medical corps, and finally attained such proportions as to demand the interference of the managers, who passed a resolution to dispense with the services of the board. This occurred on the 12th of August, and on the 26th they proceeded to select a new body, which consisted of Drs. Samuel Jackson, Joseph Klapp, John K. Mitchell, and Richard Harlan, to serve as physicians; Drs. John Rhea Barton, William Gibson, William E. Horner, and J. V. O. Lawrence as surgeons, and Drs. Henry Neill and Nathan Shoemaker as obstetricians. Dr. Klapp only retained his connection with the house until September, when he was succeeded by Dr. Nathaniel Chapman.

Dr. Lawrence, who was one of the most indefatigable workers, especially in morbid anatomy, was attacked with the prevailing fever in 1822, notwithstanding which he very imprudently continued to discharge his professional labors, until after an operation in the institution he found himself utterly exhausted and was taken home in the carriage of a friend, and a few days after expired. After the death of Dr. Lawrence, Dr. Harlan was transferred to the surgical staff, and Dr. Hugh L. Hodge was elected to the vacancy thus created in the medical department.

In 1827 Dr. Shoemaker declined acting as obstetrician, and on the 3d of September was succeeded by Dr. C. Lukens. This year was indeed rather remarkable for changes in the medical organization. Drs. Mitchell and Lukens resigned, and were replaced by Dr. Samuel George Morton, the distinguished naturalist, and by Dr. B. Ellis. The latter gentleman retained his connection with the Almshouse until 1831, when he was removed by death, and on the 2d of May, of the same year, Dr. Beattie was selected to fill the vacancy.

In March, 1828, an act had passed the Legislature of Pennsylvania providing for the erection of a new almshouse and the sale of the old one. It further provided for the erection of a hospital, not to be erected beyond Schuylkill Eighth, now called Fifteenth street. The medical board pressed the building of this hospital strongly on the managers, believing its removal to the west side of the Schuylkill would destroy its value as a clinical school. There efforts, however, proved unavailing, as the enterprise was calculated to involve a very large outlay of money.

On the 30th of April, 1832, Dr. Chapman gave up his position and was succeeded by Dr. Jacob Randolph. Up to this time Dr. Horner had been serving as physician, but when Dr. Randolph became a member of the board, they, by mutual agreement, exchanged positions, surgery being more in harmony with the tastes of the former. Almost three years elapsed before another change .is recorded, or until March 16, 1835, when Dr. Neill resigned and Dr. Caspar Wistar Pennock was elected. Dr. Pennock was a highly accomplished physician, and this hospital furnished him a field for those observations on the heart, which were afterwards presented in a volume to the medical world. An earnest and untiring worker, he was soon laid aside from the activities of the profession he dearly loved, and although still living, is the victim of a hopeless paralysis.

On the 13th of October, 1835, Dr. William H. Gerhard was elected one of the physicians. The doctor had enjoyed as a resident pupil the practice of the house for many years, namely, in 1828–29–30–31. It was while acting in this capacity in 1829 that he performed those experiments on the endermic application of medicines, which were made the subject of a thesis, and which have been translated into almost every language. It was here he commenced the cultivation of physical exploration as a means of diagnosis, and which entitles him to be regarded as the father of auscultation and percussion in America. It was here in 1836 that he made those careful investigations of the study of intestinal lesions, which clearly established the distinction between typhus and typhoid fever.* And it was here by changing the stereotyped method of treating cases of mania-potu, he was instrumental in diminishing the mortality fifty per cent.

This year, Mr. Isaac Collins, a member of the board of guardians, offered a resolution to alter the medical organization by establishing a chief resident physician to reside permanently in the house. Although it was subsequently reported as inexpedient, yet it may be regarded as the germ of a subject which has at different times produced no small amount of agitation. On the 7th day of October, 1835, both Drs. Hodge and Morton resigned. These vacancies were supplied by the election of Dr. Joseph Pancoast, the present eminent professor of anatomy in Jefferson Medical College, and Dr. William Ashmead.

On the 28th of December of this year, Drs. Gerhard and Pennock suggested to the guardians the propriety of designating the hospital department by some specific name, as that of almshouse could not technically be regarded in the sense of a hospital. When the subject came up regularly before the board, it was moved by a member, Mr. Hansel, that it should be styled the Philadelphia Hospital. This received the sanction of the majority vote, and has been known under that name ever since. In the month of February, 1837, Dr. Pancoast was transferred, at his request, to the surgical staff, a vacancy having occurred by the withdrawal of Dr. Randolph. To supply Dr. Pancoast's vacancy in the medical department, Dr. N. Stuardson became a member of the board. In 1837, Dr. Beattie, one of the obstetricians, resigned, and Dr. William D. Brinckle became a member of the board. Dr. Stuardson's connection with the house did not extend much over one year, or until May, 1838, at which time Dr. Robley

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* These papers may be found in the "American Medical Journal of Medical Sciences" for the year 1837.

Dunglison, the present distinguished professor of physiology in the Jefferson Medical College was elected. The year just passed was remarkable for one of those visitations of folly and ignorance which seem periodically to sweep over the country; providentially I believe, designed to distinguish the wise from the fools. In the instance referred to it was animal magnetism; and, of course, if a patent medicine was to be tested, or any charlatan maneuvre to to be practised, the Philadelphia Hospital was a field in which the trial was to be made, like a barber's head everlastingly pulled for stray hairs to determine the cutting qualities of his instrument. The resident pupils, among others, assiduously labored in the manipulation of the patients to determine its value, until the guardians, for fear the remedy should prove too powerful for the constitutions of the poor, passed a resolution on the 20th of June, 1837, disallowing all further operations.

In December, 1838, two vacancies were made in the board by the withdrawal of Drs. Ashmead and Harlan, to which Dr. Charles Bell Gibson, now professor of surgery in a Virginia Medical College, and Dr. Edward Peace, late surgeon to the Pennsylvania Hospital, were elected. The next change was the resignation of Dr. Brinckle, in May, 1839, and the appointment of Dr. Robert M. Huston to fill his place. Dr. Gibson declining to serve longer than the fall of 1840, Dr. James McClintock became one of the obstetricians of the house. In 1841, Dr. Peace's connection with the medical board terminated, and on the 3d of May in the same year, Dr. Ashmead again became connected with the hospital. In the following August, Dr. McClintock removed from Philadelphia, and Dr. William H. Gillingham became one of the obstetricians of the hospital.

In April, 1843, Dr. Meredith Clymer was elected one of the officers of the house, and was, I believe, the last member of the old visiting board of physicians.

The 30th of June, 1845, is somewhat memorable in consequence of the culmination of a trouble which had been developing for some time. The resident physicians were boarded at the table of the steward, where, as I understand, in consequence of the want of due formality and decorum in the destruction of an unfortunate cockroach, which had rashly taken a near cut across the table instead of going around, these gentlemen became indignant, and demanded of the managers to be transferred to the table of the matron. Their refusal to comply with this request determined a unanimous resignation, leaving the hospital unprovided with any medical assistance. The evening of that day Drs. Horner and Clymer attended and prescribed for the sick. Here was a *casus belli*, and the managers promptly passed a resolution of dismissal.

With the hope of adjusting these differences and bringing about a partial reconciliation, a joint meeting was called for July 2, at which Drs. Jackson, Horner, Clymer, Gillingham and Pancoast attended, representing, as a committee, the medical board. Dr. Jackson, who seems to have been the advocate in the case, spoke in behalf of the committee, urging the managers to allow the residents to remain, at least until their places could be properly supplied, declining to pass any censure or interfere in any matter of personal conflict between the residents and guardians, as foreign altogether to their legitimate jurisdiction. The guardians, however, were inexorable, and refused to recede from their vote of dismissal, thus forever closing the door of compromise. The seceders, after retiring, availed themselves of the columns of the Ledger newspaper, in which there appeared a card betraying, to say the least of it, a good deal of youthful indiscretion.

On the same day of this meeting Mr. Flanagan offered the following resolution: "*Resolved*, That the hospital committee be requested to look into the expediency of reorganizing the medical department of the house, and report to this board." On the 21st of July the report was made, which, after going over the ground of the trouble, recommended the abolishment of the medical board and the substitution of a chief resident and assistant resident physician, and two consulting physicians and surgeons. On the 15th of September the report was taken up and passed, modified as follows: "After the 1st of October, 1845, there shall be one chief resident physician, with a salary of $1,800 per annum; one consulting surgeon, one consulting physician, and one consulting accoucheur, each at a salary of one hundred dollars a year."

What great results proceed from small and unlikely causes. Who would have ever thought that the official existence of a medical board, composed of the ablest men in their various departments on the continent, could have depended on the life of a contemptible cockroach. In this manner the doors of the Philadelphia Hospital, as a school of instruction, were sealed for nine years.

THE ADMINISTRATION UNDER A CHIEF RESIDENT OFFICER.

On the 6th of October, 1845, the election took place under the new organization, by which Dr. H. S. Patterson was chosen physician-in-chief; William Byrd Page, consulting surgeon; Meredith Clymer, consulting physician, and N. D. Benedict, consulting accoucheur. Three months had not elapsed before the board complained of the interests of the hospital being neglected. Dr. Patterson at that time held a professorship in the Pennsylvania Medical College, and they deemed this incompatible with his present post. On the 9th of November he resigned. Dr. N. D. Benedict was elected his successor, and the office of consulting accoucheur abolished.

In January, 1848, the annual salary of one hundred dollars, which had been appropriated to each of the consulting officers, was changed, directing five dollars to be paid for each consultation, and such visits to be ordered in cases of absolute necessity.

In February, 1850, Dr. Benedict resigned, after which, on the 18th of this month, Dr. Haines became chief resident, which position he continued to hold until the 11th of February, 1853, when, exchanging his profession for another and more lucrative calling, he removed from the city leaving his place vacant, and was succeeded by Dr. J. D. Stewart. In July, 1853, an effort was made to abolish this office and return to the old system; and although it did not prove successful as regards the chief resident of the hospital, yet it did prevail in a degree by dispensing with the assistant resident of the lunatic asylum.

Dr. Stewart's connection with the house was very short. His health had been for some time gradually failing under the progress of an organic affection of the liver, which terminated his life in April, 1854. The office of chief resident was now temporarily discharged by Dr. R. T. Coleman, then an interne of the house, or until the 1st of May, at which time Dr. Archibald B. Campbell was elected.

CLINICAL INSTRUCTION.

To Dr. Thomas Bond belongs the honor of inaugurating clinical teaching in this country, while physician to the Pennsylvania Hospital, as early as 1766; but for the Philadelphia Almshouse we may claim the establishment of the first obstetrical clinic. Students of good character were allowed to attend cases of labor, and various stages of the process were explained to them by Dr. Bond or Evans, under whose personal direction these instructions were conducted as early as 1770, and in all probability much earlier, as may be inferred from the phraseology of the minutes touching the subject. In 1772, the managers were solicited to extend the medical conveniences of the house for the better accommodation of students, increased numbers of whom began to be attracted to Philadelphia from the growing reputation of the medical school. A part of this plan was to increase the medical officers; and at this date some of the first names in the profession were associated with the enterprise, such as Huhn, Rush and Clarkson; but the records are too meagre to furnish any details of the manner in which these public instructions were conducted.

It was then the most extensive hospital on the continent, containing about three hundred and fifty persons, and must unquestionably have contained much disease of an interesting and instructive character. Where the governing power of an institution is constantly undergoing change, little stability and permanence can be expected in any plan or system of education. Either the hostility of some of the managers, or more probably the unsettled state of affairs consequent on the revolutionary struggle, interrupted the medical instruction for some time before 1778, nor is there any evidence that clinical lectures were delivered in the Pennsylvania Hospital for several years subsequent to 1771, where Dr. Bond was in the habit of delivering a course as part of the instruction of the medical college.

In November, 1778, the subject was revived by the students present in the city. They presented a formal application to the physicians of the almshouse for permission to witness the practice in that institution. Drs. Rogers and Leib waited on the board of managers in their behalf, and pressed the importance of such a measure with great earnestness. On the 17th of November, the subject came up formally before the board, and although there were several altogether favorable to the proposition, a majority of the votes were recorded in the negative. Immediately after, the physicians renewed their application and solicited a personal conference with the managers. A second meeting in consequence took place, at which the advantages of hospital instruction to the profession and the community were presented with renewed cogency and sincerity. They begged a reconsideration of the subject, asking the body of managers to concede at least a probationary trial, and volunteering a personal responsibility for the good conduct of the young men in attendance. The plea was not unsuccessful ; the vote was reconsidered, and the house opened, by the majority of one vote, for clinical instruction.

Until 1789, hospital teaching continued to be conducted under great embarrassment, partly on account of the war and partly from the opposition of the hostile element in the board, so that while we cannot say it was formally abolished, " *de jure*," yet it was almost impracticable, "*de facto*."

On the 5th of May, 1789, the physicians elected sent a communication to the board, in which they took occasion to say, "that inasmuch as they furnished their services to the institution without expense to the managers, they ought to have such facilities offered as would make their practice useful to the public." Their meaning not being sufficiently explicit the board asked an explanation, which they received the 4th of July, and certainly left as little room for misunderstanding as did the immortal document associated with this day. On the 29th, the managers framed a communication for the medical attendants, full of compliment, acknowledging their valuable services to the sick, and assuring these gentlemen that they will ever endeavor to make their duties as agreeable as will be consistent with the good order of the house, and the delicacy due to the patients under their charge. One month after, all the physicians withdrew from the institution. For six years the subject was allowed to slumber, until October, 1795, when Dr. Cumming, who had been appointed one of the visiting physicians, ventured to approach this hitherto imperturbable body with a request to be allowed the privilege of introducing his private students to the wards on the days of his official visits. The proposition was promptly rejected on the ground of such publicity being calculated to do harm to the sick. In 1803, Drs. James and Church proposed to attend the lying-in wards, on condition they should be allowed to have one private pupil present at each case of labor. The application was granted, and much invaluable instruction was communicated in this responsible department of medicine. My father, who was a pupil of Dr. James, was among the number who enjoyed this privilege. The same year, on the 23d of March, Dr. Caldwell was allowed to introduce and instruct a select class of twenty—afterwards forty students—during his stated visits to the medical wards, on condition of his becoming responsible for their good deportment. Students at this time were regarded with no small amount of suspicion; and even at the present there are not wanting many persons who entertain toward them a good deal of reserve and distrust. It is a shocking thing, gentlemen, to cut up dead people; and one might suppose from the horror with which some people shun you, that students were in the habit of eating them.

In November, 1806, through the efforts of Drs. James and Church, the managers conceded the privilege to deliver clinical lectures to a class of students twice a week in the green or dead house, during the winter season. Shortly after, Dr. Barton was permitted to give instructions to his class on his days of regular attendance at the house. Every successive year now removed more and more prejudices which had so long operated against the admission of medical students. The managers were seized with an active desire to promote and foster a system which contributed so largely towards laying a solid foundation of medical usefulness. Hence, in 1806, the buildings for the accommodation of the sick and poor being inadequate for their proper comfort, the administrative part of the board addressed the legislature by petition, soliciting aid to enlarge the house.

In presenting their prayer, they rested their claims on the state alone in the fact that the charities of the institution had not been confined to the city and county of Philadelphia alone, one-fifth of the inmates being from other parts of the commonwealth; that the Pennsylvania Hospital, rich in estates, had repeatedly received assistance from the munificence of former legislatures, and was at that time before the assembly for help; and yet its doors were closed against the poor, and more than an equivalent for board and lodging exacted; that, moreover, the almshouse, containing over one thousand inmates, presented an extensive field for communicating medical instruction to students attracted from all parts of the country by the celebrity of the school. This petition anticipating extensive preparation for clinical accommodations, was regarded by the general board as an unwarrantable assumption of power on the part of the managers, and produced a very tart correspondence, which I have no doubt produced the passage of the supplement to the poor law of 1808.

Until October 25th, 1805, no fee was demanded for those attending the instructions of the institution, but at the above date a ticket was directed to be issued, signed by the president and secretary of the board of guardians, at the price of eight dollars—two tickets purchasing a perpetual privilege. The office of pupils of the medical officers were free to attend without charge. In November, 1807, Dr. James was allowed by resolution to deliver lectures in the green room, and there he and others continued to instruct until 1811, when the surgeons connected with the almshouse asked for more suitable apartments, in which operations could be performed, and thus remove from the ward a source of mischief to the other sick. To correct this evil the board had the building called the dye and wash-house, carried up an additional story, fitting it up as a lecture room, with two adjoining wards, capable of holding each twenty or thirty patients, and here were next delivered the clinical lectures.

During 1813, the managers, anxious to advance the reputation and popularity of the house, were induced to tender to any student taking their ticket, the privilege of attending a case of labor; and to give the proposal greater publicity it was by their authority announced in the public papers. This scheme of indiscriminate admission to the ward in the lying-in department brought out a minority of protest, which was not only a sensible paper on the subject of difference, but introduced and exposed the suicidal measures of the board on another matter closely allied with the success of the almshouse as a medical school, by making the simple circumstance of holding an appointment in the Pennsylvania Hospital a disqualification for holding a similar one in the institution over which the managers presided. They urged the wisdom of selecting the very best talent wherever found, and especially the propriety of seeking as many from the medical school as possible. That the force of this may be understood it must be remembered, that every student was required as a condition of graduation, to take a ticket in the Pennsylvania Hospital. If, therefore, they could identify the interests of the faculty of the University with the almshouse, it would in all probability procure such a modification of the rule as would at least leave it to the pleasure of the student whether this ticket was taken at one or the other. This protest effected a change of sentiment in the board, securing not only a more circumspect modification of the obstetrical privilege, but a repeal of the law so far as it effected the eligibility of professional men serving in a kindred institution, and on the 6th of November, 1815, produced the very result contemplated.

A more noble spirit on the part of the managers this year, also led to a pleasant interchange of civilities between the sister hospitals. The steward was authorized to address a note to the residents of Pennsylvania Hospital, inviting them to an operation to be performed at the almshouse; and this privilege was afterwards made perpetual.

On the 5th of January, 1818, a conference was held between a committee of the trustees of the University and the board of guardians, with a view of establishing more extended clinical teaching in the almshouse. The number of students had been gradually increasing. In 1818, there were fifty-three in attendance; but the succeeding three years being remarkable for the prevalence in the house of malignant disease, had no doubt some influence in diminishing the class, for in 1819 it does not appear there were more than forty-three, and in 1820 but twenty-two in attendance. In 1822, however, the number ran up to one hundred and ten. This was the year in which Dr. Barton, having been allowed to convert the area in the rear of the centre building into a botanic garden, was in the habit of taking the class among the plants to illustrate the subjects of his lectures; and the year also in which Gibson, Barton, Horner, Mitchell, Lawrence and Chapman, all accomplished gentlemen, were wont to pour forth the treasures of their experience and observation. The subject of a botanic garden on a large and liberal scale, and to be placed under a scientific head, had been a favorite idea with members of both the medical and managers' board, but could not be successfully accomplished. After Dr. Barton left the board, the old garden passed into the hands of Dr. Samuel Jackson, by whose suggestion a greenhouse was constructed for the more complete protection and preservation of the plants. Between the years 1822 and 1828, I have no data for determining the number of students attending the clinical instruction.

In 1827 it was announced in the public newspapers that the cases of recent fractures would be received and treated in the institution. The suggestion came from the surgical staff, and would enable them to furnish illustrations for the management of a very important class of accidents.

During 1827, Dr. Thomas Harris asked the privilege of delivering a course of lectures on surgery in the lecture-room of the house, which was granted by the guardians. This course was didactic in its character and had no connection with the ordinary instruction of the institution. In 1828, the number of students was seventy-five, and in 1830 rose to one hundred and eighty-five. August 11, 1834, Dr. Burden, then a member of the board of guardians, offered a resolution to appoint a committee to confer with the trustees of the University and Jefferson Medical College on subjects connected with the interests of the almshouse. The scheme which the doctor had in contemplation was, in the first place, to make the ticket of the house essential to graduation, and in the second, the organization of a summer school of practical medicine and surgery in the institution, neither of which received the sanction of the board. The first was asking a discrimination which ought not, we conceive, ever be granted to any hospital; the second was a wise, public-spirited, practical suggestion, which ought not to have been refused.

It was this year that the faculty of Jefferson Medical College then growing into deserved importance, requested the guardians to be placed on an equal status with the University in regard to clinical teaching. The plan they proposed was to set apart two wards for them in the hospital—one for medical and one for surgical cases—and alternate weeks for their clinical lectures. Those representing the interests of the University objected to such an arrangement as calculated to mar the harmony of both the schools and the hospital. They declared that they had undertaken the development of a clinical school at a time when scarcely a ticket was sold, and that they had at length succeeded in making it a source of revenue to the board, and a formidable rival of the Pennsylvania Hospital, the latter not selling over thirty tickets; and lastly, that their connection with the clinic in no way prevented the students of another college enjoying equal advantages with their own.

This year (1834) was one of great prosperity to the Philadelphia Hospital. Two hundred and twenty students were in attendance; the proceeds accruing therefrom amounting to fourteen hundred and twenty dollars. The board of managers appreciating the courtesies due to men of liberal education and position in the profession, with commendable propriety tendered gratuitous admission to all medical men attached to the army and navy. These lectures were delivered on Wednesday of every week during the winter months. In 1835, at the request of Drs. Patterson and Colhoun, the day was changed to Saturday, in accommodation to the instruction in the Jefferson College, which this year sent seventy-nine students to the clinic.[1]

The transportation was no inconsiderable item. Long lines of omnibuses (for there were then no street cars) were stationed about Ninth and Chestnut Streets on Saturday mornings, and in a few minutes crowds of students full of life and excitement were stowed away—not seated—in glorious, good-natured confusion; and at the usual salutation of the knight of the whip, "all right," were whirled away at a spanking speed, some to the South street ferry, to be carried over in a boat which has long been suspected as one of Charon's—and is so far as the transportation of *spirits* is concerned, not untruly; others by the Market street bridge. Some of my very pleasant recollections of college life in 1837, are associated with those weekly trips so admirably calculated to relieve the tedium of town, and regale the lungs with more invigorating air. The lecture room was situated in what is now the lunatic department, and only recently abandoned. It was the most capacious and finely arranged amphitheatre in the country, and capable of seating from seven to eight hundred persons. Until 1845, this hospital continued to be the great clinic school of the country, annually opening its exhaustless treasures of disease to crowds of educated, zealous inquirers after medical knowledge. The unfortunate events which in 1845 succeeded the death of the cockroach, terminated the instructions for several years.

[[1] In the "Picture of Philadelphia, etc., A Complete Guide for Strangers," published by E. L. Carey & A. Hart in 1835, the following occurs: "At the almshouse there is an infirmary, and clinical lectures are delivered to the medical class during the winter by the professors of the medical school. There are two graduates and four medical students, who reside in the house; and four surgeons, four physicians, and two accouchers attached to the institution. Resident students pay an initiation fee of two hundred dollars, and are boarded and lodged in the house for one year. Medical students pay ten dollars a ticket to attend the practice of the infirmary and have the use of the library containing nearly 3,000 volumes."]

CERTIFICATES AND TICKETS.

In 1817 a diploma or certificate was ordered to be engraved, the impressions from which were made, some on paper and some on parchment, designed for the resident pupils, and which were furnished at three and four dollars a copy. In September, 1832, a new plate was produced, altogether more artistically executed, and in 1835, a small vignette view of the house was ordered to be engraved and printed on the tickets. In 1860, another lithographic engraving of a certificate was executed. The design represents a front view of the institution, and was signed by the president of the board of guardians, the president of the medical board, and the secretary.

After a pause of several years, the profession becoming more and more sensible of the great injustice and tyranny perpetrated against the reputation of a city enjoying such unexampled prosperity as a centre of medical education, by excluding them from an institution supported largely from their own pockets, and possessed of the most ample resources as a clinical school, began to move in the matter.

On the 1st of May, 1854, the Philadelphia county medical society addressed a communication to the board of guardians, asking that the almshouse doors be opened to students of medicine. The document was forcibly written, but produced no change in the views of that body. In August of this year, Dr. John Reese, register of the medical faculty of the Pennsylvania College, in behalf of that institution, communicated with the board on the same subject, and guaranteed, if its wards were opened to public instruction, the sale of fifty tickets from that school alone. These appeals, no doubt, had some weight with the guardians, but to Drs. Henry H. Smith and J. L. Ludlow (and I speak from personal knowledge) more than to all others combined, is the profession in Philadelphia and the country at large indebted for the re-establishment of a clinical school within the walls of this institution. Neither must Dr. Penrose be overlooked in this important work, as he labored indefatigably for the same end. I make no mention of my own efforts in the same direction, for while I did what I could, I was comparatively a stranger in the city and had no influence whatever. These gentlemen visited each member of the board of guardians personally, and by an unwearied, persevering presentation of the subject in every possible shape, finally succeeded by their importunity, as the widow with the unjust judge, in revolutionizing the settled sentiment of the board, securing a favorable report from the hospital committee, and its adoption on the motion of Dr. Henley, by the general board of guardians. The rules for the government of the clinic were reported on the 6th of September, 1854, and provided for the election of two physicians and two surgeons in addition to the chief resident officers.

THE ADMINISTRATION BY A RESIDENT-IN-CHIEF, AND A BOARD OF LECTURERS ON CLINICAL MEDICINE AND SURGERY.

On the same day on which the rules were reported (6th September, 1854), the guardians proceeded to elect the medical officers, when Drs. J. L. Ludlow and Robert Coleman were selected physicians and Drs. Henry H. Smith and D. H. Agnew surgeons. Dr. Coleman being compelled by previous engagements to resign, Dr. Caspar Morris was elected in his place, and on the 30th of the following October, the staff was increased by the appointment of Dr. R. A. F. Penrose, obstetrician, to the institution. Tickets of admission were fixed at ten dollars, including transportation two days in the week, Wednesday and Saturday, for four months. The West Chester railroad which passes through the grounds of the institution, was just being completed, and an arrangement was made with the superintendent to run cars from Broad and Market streets to some point opposite the building on the days of the clinical lectures. The second week in October, 1854, an immense train left Broad street, filled to repletion with medical students, to witness the inauguration of this important event. This passenger train, I believe, was the first which passed over the long stretch of trestle-work supporting the road across the meadows of this property. Its living freight was landed opposite the river point. Certainly not less than seven hundred persons were present in the old amphitheatre, and the first clinic of the new era was held after some appropriate remarks by Drs. Smith and Ludlow. On the following June of 1855, the hospital committee deemed it proper to increase the number of medical officers, and by their recommendation two additional were added to each staff. These were Drs. Joseph Carson and J. B. Biddle to the medical; Drs. John Neill and R. P. Thomas to the surgical; and Drs. Wilson

Jewell and Caspar Morris to the obstetrical departments, the latter gentleman being transferred from the medical to the obstetrical at his own request.[1]

On the 2d of July, 1855, the period for the annual election of a chief medical officer, Dr. Robert K. Smith was selected by the guardians, and co-operated most efficiently with the clinical board, delivering in October a most excellent introductory, and participating in the clinical instructions communicated to the class. On the 21st of July, 1856, Dr. A. B. Campbell was elected chief resident physician. A remarkable change this year came over the board of guardians in reference to the house instruction. It is altogether foreign to my purpose to enter into any analysis of the instrumentalities employed to sway the opinions of these gentlemen, although they were quite patent, I presume, to any member of the medical organization connected with the institution. It is sufficient to say, that on the motion of a member, offered on the 22d of December, 1856, clinical instruction in the Philadelphia Hospital was abolished after the termination of the lectures then in progress. The reason adduced in justification of this act, was the failure of the clinic to meet its own expenses. The record stultified the allegation; and those who were cognizant of the fact could not but feel indignant at so audacious a falsification of the case. There were at that very time seventy-five students in attendance, a larger number than usually attended the hospitals either in this country or Europe.

On the 8th of June, 1857, Dr. Campbell resigned, and was succeeded by Dr. James McClintock, very shortly after which event the visiting members of the medical organization all resigned, several of the resident physicians withdrew from the house, and again the institution ceased to administer to the wants of the medical class of Philadelphia.

On the 5th of July, 1858, Dr. Robert K. Smith again became chief resident officer, and on the 19th of the same month, under the auspices of this new medical head, Mr. Reall, a member of the board of guardians, proposed to re-establish a board of clinical lecturers. The subject for a time was laid over, until the 11th of October, when the students of the different medical colleges of the

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[[1] In the copy of Dr. Agnew's lecture from which this is reprinted, the following is written in lead pencil: "This is an error certainly, at least, I have no recollection of such a request." Signed "Caspar Morris, June, 1875."]

city addressed a communication to the guardians, praying for the revival of medical instruction.

On the 22d of November they acceded to the request, and proceeded at once to ballot for gentlemen to discharge this duty. Drs. Joseph Carson, J. B. Biddle, J. Aitken Meigs and Samuel Dickson were elected lecturers on clinical medicine; Drs. John Neill, W. S. Halsey, Richard J. Levis and D. H. Agnew on clinical surgery; and Drs. R. A. F. Penrose and E. McClellan on obstetrics and diseases of women and children. Dr. Dickson's health not allowing him any increase in his labors, was compelled to decline serving, and in his place Dr. J. M. DaCosta was elected one of the physicians; and under this organization the hospital commenced again to discharge one of its legitimate functions to the community.

On the 4th of July, 1859, the old board of guardians, which for many years had been selected by popular vote, was abolished, and a new one, consisting of twelve members, appointed by the courts and Councils came into power. This organization, consisting of the most respectable and intelligent gentlemen in our community, men of enlarged liberal views, conjoined with superior practicable ability, after a careful survey of the field, entered on the work of reform. Among the subjects which earliest occupied their attention was the medical department of this institution. The result of these investigations was a return to the old system, dispensing with the office of chief resident, and placing the hospital in charge of a medical board, consisting of twelve members, to act as physicians, surgeons and obstetricians, and who were to visit the institution four times a week. The election for these officers took place on the 8th of August, 1859, at which Drs. J. L. Ludlow, William F. Maybury, Charles P. Tutt and Robert Lucket were selected to constitute a medical staff; Drs. S. D. Gross, Richard J. Levis, Robert Kenderdine and D. H. Agnew, a surgical staff; and Drs. R. A. F. Penrose, John Wiltbank, William D. Stroud and Lewis Harlow, an obstetrical staff. It was in August of this year that the professors of the Homeopathic College proposed in a communication addressed to the guardians, to take the entire charge of the medical department, and furnish all the medicines for the sick without any charge whatever.

On the 27th of December, 1859, the medical board underwent some changes, in consequence of questions connected with the political state of the country, and which have since inaugurated a revolution of unparalleled magnitude, the issues of which, on the destinies of race, nation, and the world, no human mind can foresee. Dr. Lucket, espousing the southern view of the question, induced a large number of medical students to abandon the medical colleges of Philadelphia and enter the institutions of their own states. The doctor becoming the medical Moses of this exodus left his place in the board, to which Dr. J. M. DaCosta was elected in December, 1859. In the same month Dr. Wiltbank resigned, and to supply the vacancy Dr. George Ziegler was elected. Again on May 7, 1861, Dr. Maybury was compelled by the extent of his professional duties to withdraw from the board, to which place Dr. O. A. Judson was elected.

Since the new organization of the board of guardians, by which in a great measure this house has been rescued from the vortex of politics, its medical prosperity and popularity have been steadily increasing, until it may now be pronounced the great clinical school of the country. The change was not accomplished without a struggle. There is a class of persons who can only exist in the seething caldron of political agitation, and who cling to official places like the barnacles to a ship's bottom. Of such there were some who lost no opportunity to prefer charges of mismanagement, in order to shake the confidence of the public in the administration of the present organization.

On the 25th of June, 1860, it was stated in Common Council that a great increase had taken place in the mortality of the institution since the change in the medical system, and a committee was appointed to investigate the facts of the case.[1] In the report of these gentlemen it will be seen that instead of the mortality being increased it had been greatly diminished. They took the last year of the old board of guardians, which expired on July 1, 1859, and contrasted it with the first year of the present board, which terminated on July 1, 1860. By examination it appeared the year ending July, 1859, the average population of the house was 2,513, and the deaths for the same period were 657, or 26.15 per cent. of the average population. For the year ending July, 1860, the average population was 2,520, and the deaths for the same time were 589, or 23.30 per cent. of the average population.

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[1] Journal of Common Council, from May to November, 1866, page 121.

This showed a decrease of 68 in the number of deaths, or 11 per cent. on the mortality of the previous year.

In the insane department, in 1859, with an average population of 400, there were 96 deaths, or 24 per cent. on the above average. In 1860, the average population was 425, and 72 deaths, or not quite 17 per cent. of the average population; a decrease of 38 per cent. in the mortality of the previous year. They go on further to state that it must be remembered that only a part of the population of the almshouse is under medical treatment, and that the proper basis to determine the mortality among the inmates should be taken from the hospital. For this purpose the committee took the last published report of the late chief resident of the former board for 1858. Its author declares during that period the institution shows a smaller mortality than had been known for many years. By that report, in the various wards of the hospital, children's asylum, and nursery, there were treated 5,335 cases of disease, of which number 548 died, or 10.29 per cent. The books of the present board showed 6,176 cases treated, and 478 deaths, or 7.74 per cent., exhibiting a decrease of 25 per cent. on the mortality of the former year. This, then, was a vindication of the wisdom of the guardians in establishing the present medical organization, and rested on a mathematical demonstration, which even its enemies dared not gainsay.

On the 10th of September, 1860, the medical board addressed the guardians on the propriety of throwing open the wards of the hospital for free clinical instruction. This proposition was considered from a liberal and intelligent standpoint, in its broader and more general bearings, and on the 24th of September, 1860, received their cordial sanction; and its doors have been opened to this time, and it is to be hoped through all time to come, its doors may never be closed against or a fee craved from those who enter its halls in search of that knowledge, which can alone render them qualified to discharge the functions of a divine art.

In the month of April, 1861, the guardians furnished another proof of the confidence which they reposed in the medical board by authorizing the construction of the present lecture room, which for elegance and convenience has no superior; and which was formally inaugurated on the 16th of October, 1861, in an able address by Dr. J. L. Ludlow, on "The Rise and Progress of Clinical Instruction."

MUSEUM.

On the 25th of November, 1814, the first efforts were made to establish a hospital museum. The board required every resident pupil to leave in the house a preparation made by himself. That the rule was enforced for a time there can be no doubt, for on the 26th of February, 1822, I find the acknowledgment of the following anatomical preparations: A corroded kidney, by J. T. Sharpless; a side view of the head, with the vessels injected, by J. M. Fox; a specimen showing the anatomy of scrotal hernia, by Edward L. DuBarry; and a fœtal preparation showing the vessels peculiar to circulation. Where are these now?

The 23d of November, 1840, Dr. Burden, one of the guardians, presented a resolution to fit up a room in the centre building of the hospital for a museum, which was to be placed under the charge of the apothecary, to whom all the morbid specimens were to be given for preservation. The first museum contemplated was evidently to be only a depository for normal anatomical specimens; this last may be considered as the inception of a pathological cabinet. There were three things which, of course, rendered it impracticable. First, the curator was to be the apothecary, who knew nothing of pathology; second, there were no provisions made for dissecting the specimens; and last, at this very period the subject of post-mortems was embarrassed by more formalism than would be necessary to ratify and induct an archbishop into his holy calling.

On the 10th of September, 1860, the present board of guardians, acting on the recommendation of the medical board, authorized the founding of a pathological museum, to which the writer was assigned as curator. For the perpetuation of this important undertaking an annual appropriation of two hundred dollars is made, which, if judiciously expended, will serve to preserve a large amount of pathological material. The work has begun; already a considerable collection has been placed on the shelves of this museum, some of them quite unique of their kind, and all most valuable illustrations of morbid structure. Although much of this work has been done at considerable personal inconvenience, yet I assure you that it is with no ordinary feelings of personal pride and pleasure that I regard the association of my name with an enterprise which, if prosecuted with ordinary industry and intelligence, will in a few years secure to the Philadelphia Hospital the most valuable collection of morbid anatomy to be found anywhere in the country.

LIBRARY.

Among the wants specified by the board in 1805, when they went before the legislature for aid, was a room to be appropriated for a library. About the beginning of the year 1808 this work commenced, and on the 9th of May one hundred and fifty dollars were appropriated by the managers for the purchase of books, to be selected by the physicians of the institution. Rules were reported shortly after for its management, and the senior resident student appointed librarian, at which time the books were labelled and numbered. In 1810 another appropriation of one hundred and fifty dollars was made for the same purpose. On the 28th of December, 1812, a committee was appointed to draft rules for the management of the library, and at this date there was an unexpended balance to its credit of four hundred dollars, which was money received from the house pupils.

In 1813, a rule was passed conferring a life privilege of the use of the library for the sum of thirty dollars. This year three hundred dollars were expended on books, duplicates of all the elementary works being ordered. In 1815 free access was allowed to physicians and students who should attend the practice of the house for two years, and also to private pupils of the medical officers of the institution. In 1816 the apothecary was appointed librarian and the library catalogued.

On the 18th of August, 1818, by a report of Dr. McClellan, the library contained 1,022 volumes, and 597 different works. On the 8th of November, 1824, the managers passed a resolution making an annual appropriation of two hundred dollars for the benefit of the library. In 1827 Dr. Horner presented the institution with one hundred and twenty theses from Edinburg. In 1831, it was again catalogued by Dr. Rivanus, one of the resident physicians, and contained some very valuable works.

In November, 1836, Dr. Charles Pickering applied to the board for certain works in their possession for the use of the United States exploring expedition, which were not attainable in this country, offering a large advance on the importation price as an inducement to sell. The matter was referred to the medical board and refused. Accessions were made from time to time, by appropriations made out of the proceeds resulting from the sale of clinical tickets, until it numbered over 3,000 volumes, the finest collection of ancient medicine and surgery probably anywhere to be found.

For the last fourteen years very little attention has been bestowed on this important appendage to a great hospital. On the contrary, it has been plundered by the vandalism, to which it has been exposed, of much valuable matter. At present, however, it has been placed under the care of Dr. Tutt, and having been removed from the lunatic department is being rearranged in an excellent room appropriated to its use, in the north end of the hospital building. An appropriation is now annually made by the present board of guardians for its improvement and preservation, and we may hope to see it again growing in value every year.

INSANE DEPARTMENT.

The almshouse buildings, as first constructed, were not adapted to the reception of insane patients, especially if laboring under a violent type of mental disease. The managers, therefore, were in the habit of placing such cases in the Pennsylvania Hospital, whose arrangements were safer and better for the care of lunatics. The expense of supporting them in this institution was an item of much complaint on the part of the managers of the almshouse, and on July 4, 1803, the physicians had a meeting on this subject. They recommended in order to accommodate the insane poor, to convert as much of the new range of buildings (at Eleventh and Spruce streets) as could be spared into cells for their accommodation. The board not thinking this locality altogether safe, fitted up the cellar under the west wing of the house, then occupied as a dining-room. This improvement was completed in December, 1803, and thither to this subterranean prison were ten persons removed from the Pennsylvania Hospital—the number of the violent class then under the care of the managers. The names of these first ten occupants were John Savage, Robert Crawford, George W. Odenheimer, John McClean, Stephen West, Mary McFall, Catharine Erringer, Christiana Griskey, Sarah Tomb and Abbe Conly.

The portion thus set apart in a few years became insufficient, some of the cells containing two maniacs. The medical officers again pressed the necessity of additional buildings, as a measure enforced by every consideration of humanity. These underground cells were damp, chilly caverns, with insufficient light and imperfect ventilation; they were close to the sick and surgical wards, and the noise of these creatures bereft of reason, howling like caged beasts, exerted not only an unpleasant influence on the sick, but even shocked the public ear. In 1833, the insane were removed in common with the other poor, to the present building, a part of which had been constructed for this unfortunate class, that is furnished with those mechanical contrivances which were deemed essential to their treatment.

Among the results of scientific medicine, there are none gentlemen, which have been fraught with so much blessing as those which have crowned the rational study of mental disease. The damp and gloomy cells of the old almshouse on Spruce street, and the walls and subterranean vaults of the present, furnished familiar demonstrations of the frightful armamentarium at their command, not indeed for restoring reason, but to scare her forever from her seat in the soul. You have but to cross the area of this enclosed square, to see still the iron hooks in the floor where they were tied down hands and feet, the rings in the outer wall where they were chained like wild animals, when led from their gloomy abode to enjoy for a little while the pure air and sunshine of heaven. There too, may be still seen the traces of blood, the marks of the teeth, as they have in their agony vainly endeavored to gnaw through the doors which restrained their liberty, and not the least horrible of these inquisitorial mechanisms, there still stands the composing chair in which the doomed lunatic was secured, his head supporting a capacious box of ice, which melting, poured its chilling contents adown his person for hours together.

In 1835, the hospital committee authorized the purchase of books, prints and musical instruments for the use of the lunatic department, and more than usual interest for a time was manifested in improving its condition. In the beginning of 1845 a ball was given for their amusement, and with such satisfactory results, that Dr. Dunglison in the following April asked its repetition.

On the 17th of September, 1849, Dr. Henley was appointed assistant physician to this department and to the smallpox hospital at a salary of five hundred dollars. In this position he continued until February, 1852, when he resigned, and was succeeded by Dr. J. H. Benton. Shortly after, however, Dr. Benton was superseded by the re-appointment of Dr. Henley to his old post, with a salary increased to seven hundred dollars. This office was abolished, I think in 1854, and from that time forward the asylum until a recent period, was lapsing rapidly into disorder and decay. Among the noblest acts of the present board of guardians, was the reorganization of this department. None but those who were conversant with the house, can form any conception of its utter inefficiency to fulfill the purposes contemplated by such an institution. It was visited for the most part by sightseers, attracted by the same motives as one visits an exhibition of animals. The hallucinations and eccentricities of these poor God smitten creatures were the subject of thoughtless sport, and became strengthened and confirmed by being maintained in a state of constant activity. It was a burning shame on the good name of this Christian community, that such a cage of idleness, uncleanness and disorder should have been tolerated for a moment in their midst.

On the 24th of September, 1859, the insane were separated from the hospital department and placed under the charge of a medical officer, Dr. S. W. Butler, at a salary of one thousand dollars a year. Since this event a new state of things has been introduced. An air of order, comfort and cheerfulness is noticable on every side; industry has taken the place of idleness; and there may be seen numbers of the inmates busily engaged, some cultivating with judgment and evident gratification a garden of vegetables; some sewing and making up garments of various kinds; some working at shoes, and some enlivening the ear with the delightful sounds of music, executed with no ordinary taste and skill. By the last year's report it will be seen that nearly all the vegetables used by the house have been cultivated by the insane, amounting in money value to nine hundred and fifty-eight dollars and sixty-three cents. They will soon, it is further stated, make all the clothing and shoes consumed by the department. Another ameliorating and salutary feature is the revival by Dr. Butler of the musical entertainments, when the inmates at the sound of the violin and piano, select their partners, and with all the decorum and conventional proprieties of rational society, tread the giddy mazes of the dance, exhibiting the most striking expressions of mirth and enjoyment. Such a regimen is well calculated to introduce new trains of thought, which serve either to substitute those which constitute the phenomena of their insanity, or enable the individuals to correct, by a legitimate induction, the delusions under which they may labor.

I am indebted to Dr. Butler for the tables which furnish the following results. From 1834 to 1861 (inclusive) there have been received into the men's department, 3,858 insane persons, whose social state was as follows: 1,803 single, 1,054 married, 332 widowed, and 669 unknown. Of the habits of the number, the following may be stated: 449 were temperate, 371 moderate, 528 intemperate, leaving 2,510 unknown. In the women's department, from 1835 to 1861 (inclusive) there have been received 3,473, the social and habits of whom, however, were not compiled later than 1845, and are as follows: 329 single, 299 married, and 222 unknown; 214 temperate, 14 moderate, 67 intemperate, and 635 unknown, in a total of 928.

APOTHECARIES AND HOUSE PUPILS.

Until June 6, 1788, there is no evidence that the medicines requisite for the sick were prepared in the house, or that persons instructed in medicine resided in the institution. The apothecary shop was established at the date stated, and John Trust, being recommended by the physicians, was appointed to that office. The duties were both pharmaceutical and medical, and this officer was required either to be a graduate or an advanced student. Under the first he was to prepare and dispense the prescriptions of the attending physicians; and under the second, he was to attend to the ward dressings, keep a record of the name, date of admission, sex, age, disease, event of each inmate, and preserve an account of the women delivered in the obstetrical ward. The remuneration was board, washing and lodging. In 1789, an additional one was deemed necessary, and we find the name of John Davidson mentioned as apothecary and house pupil. In 1802 the number was increased to three, and the system of juniors and seniors first introduced.

The eldest was styled the senior student, the next the junior student, and the third called the apothecary to the infirmary.

The senior was to attend the sick, keep a history of all the cases which the medical student might direct, with a register of the name, date of admission, age, sex, disease and event. The junior was to dress, cup, bleed in the surgical wards, visit the working wards daily, and if any were sick report the same to the senior, and keep in order the surgical instruments and apparatus of the house. The apothecary, besides preparing the prescriptions, was required to cup and bleed in the medical ward. Each of these house pupils was to pay eighty dollars and serve, the senior two and a half, and the others three and a half years.

In 1811, the number of house pupils, or apprentices as they were occasionally termed, was increased to four during the winter and three in the summer season, each to pay one hundred dollars into the treasury for the benefit of the house. In 1813 the number was fixed at four for the entire year; two seniors and two juniors. All candidates to be eligible for election must have been under the instruction of some practitioner for two years, must have attended one course of medical lectures, and were required to pay before entering on service one hundred dollars into the hands of the treasurer, and to give bonded security for the faithful performance of his duties. The seniors rotated monthly in the different departments of the hospital, the juniors every two months. The obstetrical cases were attended alternately by both juniors and seniors. The juniors prepared all prescriptions, kept a careful record of the same, and were present with the seniors in their stated rounds with the sick.

In 1816, the house pupils' fee was increased to one hundred and fifty dollars, and the term of service reduced to twelve and six months. This year, at the suggestion of the visiting physicians, the managers believing there were ample duties to employ one person constantly in the apothecary's shop, disconnected the office of apothecary to the infirmary from that of house pupil and established it as a distinct position, with a salary of three hundred dollars a year. After a single year's trial the office was abolished, but so injudiciously that on the 2d of February, 1818, they were compelled to re-establish it again. Gerald S. Marks was appointed to this office and continued to occupy it until his death in 1832. He was succeeded by his son, Samuel P. Marks, and next by James N. Marks, first as an assistant and afterwards as principal, which position he continued to fill with unexampled ability until March 8, 1852—seventeen years. Mr. James N. Marks was for many years a member of the board of guardians, a man of practical ability, whose record I have no doubt stands unimpeached. After the resignation of Mr. Marks the board elected Mr. Huffnell apothecary, in which capacity he continued to act until 1856, when Mr. Bender, who had been acting as assistant, became principal.

In 1817, the population of the hospital had so increased that it was found necessary to provide a larger number of resident pupils, and to meet the wants thus arising eight were elected, to serve six and twelve months. In 1820, the title by which these gentlemen were called was changed from house pupil to that of house surgeons and house physicians. The following year, 1821, the resident fee was increased to two hundred dollars. In November, 1822, the managers believing that fewer residents could meet all the demands of the institution reduced the number to six, and the next year, 1823, in consequence of a civil strife between some of the managers and the house physicians, the medical board advised a change in the mode of attending the sick, by dispensing altogether with resident under-graduates, and electing two graduates in medicine of known ability, who were to receive, instead of a salary, an honorarium in the form of a piece of plate, with a proper inscription, not to exceed one hundred dollars in value. The plan proposed was adopted without the contemplated plate, but could not have met the expectations of the board, as the resolution was rescinded the same year and resort had to the old plan.

On the 8th of November, 1824, the medical board recommended the examination of all candidates for the medical service of the hospital, that they might be able to secure the best qualified talent, and this received the sanction of the managers. Another suggestion of the medical board, which was endorsed by the same gentlemen, was the election of two additional pupils to be called recorders, whose duty it was to keep an accurate history of all cases of disease in the institution, a work which, had it been carried out in good faith to this day, would have constituted a treasury of medical knowledge unequalled in value in any country. Nothing practical or important, however, emanated from this office. Here and there among musty, defaced papers, I discovered a few histories, as one searching among ancient ruins meets with broken pillars and fragments of dismembered arches. They never can be gathered together from amidst the dust of time and decay and framed into symmetrical pieces.

In 1828, the seniors, by a resolution of the board of guardians, were styled resident physicians, and the juniors resident students. In 1835 the fee exacted from those elected to either position was two hundred and fifty dollars, which seems to have so remained until September, 1839, when it was reduced to fifty dollars and the price of board. From that period to the present, the number of resident physicians has been eight, boarded and lodged at the expense of the institution, and required to deposit one hundred dollars as a collateral assurance for the fulfillment of their contract, to be returned at the expiration of their term of service or when honorably discharged. There have been since 1788, the year in which it may be said the system of residentship was established, three hundred and fifty pupils, or physicians officiating in this capacity, among whom the names will be found of the most distinguished physicians and surgeons, dead and living, from the north and south, for the last quarter of a century. Here is one of those examples of moral reaction or compensation, as noticeable among the groups incident to the social state, as between the kingdoms of nature elsewhere. Poverty, misfortune and sickness, universally regarded as evils, yet counterbalanced by yielding, as fields for scientific observation, a rich harvest of solid, practical medical knowledge.

EPIDEMICS.

In an institution giving shelter to the destitute, decrepid and broken-down, the existence of epidemic and malignant disease may very naturally be anticipated, and this house has proved no exception to the rule. In the early period of its existence, very little satisfactory information can be gathered in regard to the details of its prevailing maladies. During the spring months of 1776, the inmates suffered very severely both from smallpox and putrid sore throat. Many cases of the worst character were taken from the house and quartered in private lodgings, with the hope of staying their fatal progress. No mention is made either of the number of cases or the deaths, and therefore the extent of the mortality can only be approximately arrived at. The cost of burials, with a population of two hundred, and in the ordinary health of the institution, was about eighteen pounds. The year under consideration, 1776, the expense of burying amounted to forty-seven pounds, sufficient to show that the mortality had been doubled.

In 1779, a form of intermittent fever prevailed during the month of April, concerning which it is said, "there were deaths daily, and much distress in the house." For nine years following 1779, the institution appears to have enjoyed a wonderful exemption from fatal diseases, or until 1788, when a person in the month of February was admitted from Southwark, indisposed from some undeveloped affection. Shortly after, his disease proved to be smallpox which spread with great rapidity among the inmates. This was among the most terrible scourges, as vaccination had not been discovered, and against inoculation there was a wide-spread prejudice.

In 1793, Philadelphia was visited by yellow fever, and this institution was doomed to pass through the severest ordeal which it had ever sustained. It is quite impossible for us at this day to form any just conception of the panic which seized the public mind at the appearance of this desolating plague. There is something very appalling in the moral effect of those unseen agencies with which God sometimes scourges a city or a nation. Men can preserve their composure on the field of battle, where the mail-clad hosts of contending armies, struggle for victory amid the roar of artillery and the shouts of their captains; but let the angel of pestilence, that walketh in darkness or wasteth at the noonday, shake from his sable wings the invisible spores of infection and death, the merchant sinks at his desk, the artisan totters and falls at his bench, an acquaintance making a transient call suddenly grows pale and feeble, is borne home to his bed to struggle a little, gasp and die. I say, let men witness a few such scenes as these, and they soon betray the veriest cowardice and fear.

During the prevalence of the fever the whole face of the city was changed. There were then no funeral trains attended with the usual pomp and pageantry of mourning; no coffins of elaborate workmanship to contain the mortal remains of the dead and borne with formal steps to their last resting place. On every hand the beholder encountered open and unattended carts containing rude boxes, exposed to the public gaze and hurried with all despatch to be buried out of sight—not in single graves, but numbers together in capacious pits. Men cared not to tarry on the street but hastened on with furtive glance, as though the fell destroyer followed on their track. There were no hearty, joyous salutations. Men exchanged the common civilties of recognition as though they never expected to meet again. The ties even of kindred blood lost their wonted power; families became a terror to one another, fleeing asunder as one would hurry from devouring flame. The song of the drunkard had ceased; the saloons of dissipation were closed; the haunts of vice were unfrequented; and even the shameless votaries of lust and lewdness slunk into their dens of infamy. As a means of protecting the inmates, the medical attendants recommended the board to grant no admissions whatever. Still the precaution proved unavailing; the disease broke out in the house and large numbers were attacked; very many were removed to the hospital on Bush Hill. There are no records or sources of information from which any statistical light can be drawn, either to determine number of cases or the mortality. That it was great there is little room for doubt. When the disease was at its height most of the managers infected by the common panic and widespread distress did not venture to attend the institution. But there were the medical attendants and the steward who never deserted their posts, but stood by this flock of decrepid, friendless poor, with a devotion and moral heroism, which I rejoice to say has ever been the glory of our profession.

During the prevalence of the epidemic the demand for graves was so great that the poor were unable to dig them with proper care. Potter's Field, now the beautiful Washington Square, was the public burying ground. The interments were so numerous and incomplete as to call forth a remonstrance against depositing any more bodies within the enclosure.

In 1801, there was a pauper, Thomas Wilkinson, in the house, who during the epidemic assisted in placing in coffins and burying 1,500 victims of yellow fever; and in consideration of his having accomplished so unparalleled an office of danger and humanity, he was pensioned with a little extra food and clothing. Here was a man possessed of a wonderful degree of fortitude. I should have given much to know such a one: for depend upon it, had such a nature been properly understood, it could have been taken by the hand and conducted into some nobler sphere of activity and duty than is usually found within the walls of a public charity. On the 30th of December, the disease having disappeared, the doors of the house were again thrown open to persons entitled to its aid.

The managers after witnessing the horrors of the late epidemic, had become exceedingly sensitive on the subject of what they considered contageous diseases; and in 1795, when the city board sent to the institution cases of dysentery, which was then prevailing both in the wards of the hospital and throughout the town, they remonstrated strongly against their actions.

In August, 1798, Drs. Pleasants and Boyce communicated to the managers the unpleasant intelligence of the re-appearance of yellow fever in the city, and asked the adoption of additional precautionary measures to avoid the introduction of any affected person. The steward was accordingly directed to allow no admissions whatever without a certificate from one of the attending physicians. The subject of ventilation began at this time to receive some attention. The windows were so altered as to lower from above—and I may add here, in passing, that this subject has not yet been exhausted even in the present palatial building. Frequent conferences took place at this time between the managers and the board of health, and between the former and the managers of the marine city hospital, with a view to provide accommodations and sustenance for the poor of the city and districts, and to aid such persons who desired to remove from the city limits. It was certainly a period of the most deplorable suffering among the poor. On the 10th of September, 1798, they concluded to solicit a loan on subscription, to be reimbursed out of any fund designated by the legislature. During the month of November, between two and three hundred children, utterly destitute, were sent to the managers, their parents having fallen victims to the fever. Some idea may be formed of the state of the public mind when it is stated, that during the fever of 1793, 17,000 persons fled from the city; and during that of 1798, 50,000, leaving only something over 3,000 persons in Philadelphia; and that from August 8th to October 3d of these two visitations, 4,625 individuals fell victims to the disease.[1]

This year the whooping cough prevailed to an unparalleled degree; it visited almost every house, and in order to isolate the children, Luke Morris, one of the managers, took a house some distance from the institution.

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[1] Hazzard's Register, Penn., Vol. 10, p. 112.

In July, 1802, great apprehension was again entertained of another visitation of fever. The doors were closed against the admission of any paupers; no stranger was allowed to visit the house; the use of the hearse was not permitted for any burial but such as took place from the institution; nor were the resident pupils allowed to visit anyone in the city. This interdict was maintained until the 9th of November, and whatever influence it may have exerted, certainly the house enjoyed a comparative immunity from disease. Again in September, 1803, another alarm prevailed in consequence of the re-appearance of fever in the city; and again were admissions refused except to the officers of the house. The board, with the consent of the governor of the state, took the Pennsylvania arsenal as a temporary accommodation for the poor. They afterwards procured a house on the banks of the Schuylkill, at Race street, belonging to Dr. Curry, which was supplied with twenty-five bedsteads and bedding, a horse-cart and other necessary appliances. This proved to be the last visit which the almshouse received from the yellow fever.

During the month of August, 1807, an epidemic of influenza broke out in the institution, attacking both inmates and officers, and prevailing in so violent a form and so general, as to interrupt the ordinary routine of business.

The health of the institution appears to have been generally good after this until 1811. In August of that year a violent type of dysentery made its appearance in the wards, and proved so extensive and malignant that the board had many of the worst cases carried out of the house and quartered in a barn, which stood on a vacant piece of land near by, called the pasture lots, and which it appears was followed almost immediately after by salutary results.

In order to isolate the cases of smallpox which from time to time made their appearance, a house was taken in 1815, directly opposite the institution on Spruce street, into which such patients were placed.

The fall of 1817, was one of much sickness, distress and mortality in the almshouse. The ordinary diseases of the house all tended to assume an adynamic type throughout the winter, and after the commencement of the new year 1818, in January, typhus fever prevailed to such a degree as to invite inquiry into the sanitary state of the wards from the board of health. The disease commenced about November 1, 1817, and as near as I can ascertain, up to January 5, 1818—two months—there had been eighty-six cases; sixteen had died, twenty were discharged, fifty remained, and twenty-five of these were considered to be convalescing. What number of this remaining fifty died it is impossible to learn. This statement was made by Dr. James, after which there is a record of nine cases of which six died. By February, the number and malignancy of the cases increased to such an extent that the managers requested the general board to issue no more admissions, and accordingly on the 28th, the latter concluded to send all cases of undeveloped disease to the quarantine house, until their character was declared; should they prove to be typhus, they were sent to the sugar-house, an old building which stood on the almshouse grounds contiguous to the institution. It was about this time the general board framed an address to the medical officers, asking their opinion on the contagiousness of the fever then prevailing. Their answer was like some oracular response, characterized by a degree of caution and non-committal which would have done credit to the most adroit politician of 1862; yet it might be gathered from the counsel which they gave, urging "the separation of the affected from the others," that they all believed what they did not care to express. Among their recommendations was the increase in both quality and quantity of the diet of the poor, as calculated to enable these helpless beings to resist the morbid influences. The managers thought it better, however, to refuse this, and to regale them by highly nutritious and stimulating beverages of molasses, ginger and water.

In 1823, cases of smallpox becoming numerous, it was thought best to take the hospital at Bush Hill, the superintendence of which was committed to Dr. John K. Mitchell on the 2d of December of that year, who continued to discharge his duties with devotion, alike creditable to his goodness of heart and his well-known professional ability, until February 2d, 1824, as long as the necessity for his services existed, at which time he received the complimentary thanks of the board, and was voted a piece of plate, which his son, Dr. S. Weir Mitchell, has informed me was a pitcher bearing an appropriate inscription.

I find also a report containing the results of his service, from which it appears that there were one hundred and fifty-eight persons received into the hospital. Of this number one hundred and fifteen cases were unprotected, and seventy of these died; twenty-five had been vaccinated, all of which recovered; five had been inoculated, of which two died; and of the remaining nine, nothing of their previous history was known. Eighty-four of the cases occurred in males, of whom forty-seven died; seventy-four in females, of whom thirty died. The greatest mortality was among the males, and curious as it may seem, the fatality among those previously inoculated, or who had had variola, was greater than among those vaccinated. On June 21, 1824, the thanks of the guardians were tendered to Dr. John Bell, who was associated with Dr. Mitchell, for his humane and faithful attention to such as labored under this loathsome disease. Dr. Bell's name continued to be associated with the smallpox hospital until very lately when it was closed.

In 1827, Dr. Thomas Brinckle had the care of this hospital; a report was made in September of that year, from which it would appear there were received one hundred and seventy-six patients, sixty-one of whom died and one hundred and fifteen recovered. In eighteen of these cases the patients had passed through a previous attack, three of whom died; fifty-three cases had been vaccinated, and eight died; a result corroborating the report of Dr. Mitchell, and tending to establish what I believe is at present asserted, that vaccination is a better protective than either inoculation or variola itself. As early as 1818, the subject of erecting a building for contagious diseases, or pesthouse, as it was termed, had been agitated by the board, and while it was the conviction of a majority of the members, that the matter of providing for contagious diseases did not legitimately belong to the guardians, yet as a necessity, the construction of such a building was recommended. On the 5th of June, 1835, a resolution to the same effect was passed, but never carried into effect, while the almshouse stood on the east side of the Schuylkill, the old sugar-house being used for that purpose. In 1841, however, after consultation with the medical board, a site was selected on the west side of this institution, on which a building was erected and called the outer hospital, for cases of an infectious nature. This was afterwards occupied as the residence of the physician-in-chief, having been moved in its totality to its present situation on the Darby road, at the very trifling cost of about two thousand one hundred dollars, and is now occupied by Dr. Butler, the physician in charge of the lunatic department. To provide for cases of smallpox, the guardians have been in the habit of using the old mansion-house between the institution and the gate of entrance from Darby road. The liability of the board of health to take charge of cases of smallpox, has been, and I believe still continues to be, a point on which a wide difference of views exist. In 1850, the solicitor of the board of guardians was requested to frame a petition to the legislature, praying their body might be relieved of this duty; still in 1852 an act was passed giving to the board the right to charge three dollars a week for every case of contagious disease for which their body provided. The hospital on Islington lane having been closed on the 1st of April, 1860, strange as it may appear, in a community proverbial for its wise and liberal provisions for almost every species of physical, moral and mental destitution and suffering, Philadelphia is to-day without a public place where either citizen or alien could command the services of a physician or nurse if overtaken by contagious disease.

In 1832, Philadelphia was visited by the cholera, which produced an alarm only equaled by that of the yellow fever in 1793 and 1798. In July the medical staff advised the non-reception of cases, and an immediate provision for such as occurred within their jurisdiction outside of the house. The physicians to the out-door poor held a meeting, at which Dr. Condie presided, and recommended the establishment of temporary hospitals to be placed under their care, and to receive all such cases as were not thought proper subjects for admission to the house. At that time the present almshouse was in process of erection, the present lunatic department being almost completed. About the 21st of July a case appeared in the infirmary of the institution, then in charge of Dr. Hodge, and it was at once resolved to remove all the healthy paupers over the river to the west building, designed then for a hospital, and these were the first occupants of the new institution. The guardians next made application to commodore Baron for the privilege of removing others still remaining to the naval asylum, but this was declined, as the commodore did not feel authorized to allow its occupation by civil authorities other than as a hospital. A subsequent resolution empowered the president of the board of guardians, Mr. Lippincott, with the mayor of the city, to arrange for the admission of a number of cholera patients into the asylum.

In the house the cases increased daily, until a general panic took place. Nurses became clamorous for an increase in wages, which was granted. These, between terror and a want of moral sense, were seized with a kind of mad infatuation. They drank the stimulants provided for the sick, and in one ward, where the pestilence raged in its most fearful forms, and where between the dead and the dying the sight was most appalling, these furies were seen lying drunk upon or fighting over the dead victims of the disease.

Persons rescued from shipwreck have furnished histories of some very singular mental phenomena, the product of utter, hopeless despair, disarranging the complex machinery of the intellectual and emotional organization, so that while the great hulk freighted with living souls was settling down into its grave of waters, some would laugh as though in the ecstacy of joy, and others command in vehement tones of authority the billows to roll back and the tempest to hush. We call all such extravagant exhibitions hysterical, but the mental and physical reactions are none the less curious to either the metaphysician or the psychologist.

In this state of disorder, application was made to Bishop Kendrick for sisters of charity. The request was granted, and these devoted ministers of mercy at once entered on their mission of danger, restoring order and diffusing hope by the calm and self-possessed manner with which they moved among the diseased. These sisters remained at their post until the 20th of May, 1833.

During the epidemic the utmost attention was given to the study and treatment of the disease. Dr. Hodge has informed me that at the suggestion of Dr. Horner the saline solution was thrown into the veins, in order to provide for the blood lesion which was alleged by several prominent authorities to exist, but in no case were any good results obtained. Large double tin cases were likewise constructed, in which the patients were placed, while external warmth was communicated by filling the interval between the case and its metallic lining with hot water. Little, if any, benefit was experienced from this mechanism.

In 1849, the cholera returned; and in July a meeting was called by the mayor to consult on the best measures for the exigency again likely to be forced on the community. This meeting took place at the office in the city, and was attended by Drs. Benedict and Page from the institution; and Drs. Harris, Meigs, Pearce and Dillingham of the city. The board of guardians, after receiving all the light possible from an interchange of views, concluded to appoint a committee to carry out any medical suggestions made by the medical officers of the house. The cases increased rapidly in the institution. The wash-house which stands in the centre of the hollow square was occupied first as a cholera hospital, and I remember well passing through the building and witnessing with sad interest the poor victims in every stage of the disease. It was an excessively hot day, yet they were all as cold as a block of ice, and the lines of death were legibly traced on every face. Dr. Massenburg, from Hampton, Virginia, was appointed temporary resident at the hospital at this time; a most amiable and intelligent gentleman, one of the first medical acquaintances I made after coming to the city. He was attacked with the disease while absent a few hours on a visit to the town and died in great agony, notwithstanding that the most untiring efforts were made in his behalf.

The earliest case of disease in the house was on the 27th of June, 1849. A colored man, William Jones, was brought into the black medical from the city on that day and died before night. The second case was likewise a negro, Isaac Wood, who was brought from the city on the 29th and died the same day. Between this date and the 1st of July nine other cases occurred. At this time the second story of the building, called the wash-house, was arranged for a hospital, and patients conveyed there as soon as attacked. For several days after this the cases were so numerous and fatal that in the alarm and confusion no register of admissions was kept. After the 7th of July there is an account of ninety-nine males admitted, eighty-seven of whom died; and one hundred and one females, ninety of whom died.

On the 13th the medical attendants recommended the erection of two temporary hospitals outside of the walls. The workmen commenced on the 16th, and by the 23d had up two board tents in the field by the gate as you enter the lane from Darby Road. They were occupied the same day by twenty males and eight females. Of the former seventeen died; of the latter three died. Sixty-eight additional cases were treated in the tents, of which number thirty died. From these data, which I believe from personal observations to be far short of the truth, the total number of cases was 307, and the deaths 229.[1] The disease disappeared about the 20th of August, at which time these provisional hospitals were taken down. During much of this time the guardians could not raise a quorum for the transaction of business, but no record remains of any medical officer having left his post, except poor Massenburg, the stranger, who was called I hope from probation to fruition.

The sanitary committee of the board of health, under the impression that the virulence of the disease in the hospital was due to improper diet, sent a communication to the board of guardians on that subject. The statements made in their answer showed that any trifling impropriety of this nature had little to do with its prevalence. The mode of burying the dead was changed for a time; trenches were dug so as to hold only four coffins, two abreast, and twenty-four inches apart. This space was filled in with dirt, twenty-five pounds of chloride of lime was added to each grave, and the whole covered with four feet of earth.

In 1854, a third epidemic of cholera prevailed. It commenced on the 7th of July, and attained its greatest fatality the last days of this month and the beginning of August. Straggling cases of it appeared as late as the 7th of November. During this period there were about 300 cases, most of which were treated in the small-pox hospital near the gate, with the addition of a wooden tent. On examining the sources calculated to throw light on the result, it would appear 150 cases of the number attacked proved fatal.

During the months of January and February, 1849, a very fatal epidemic of puerperal fever prevailed in the lying-in department of the house. I have not been able to ascertain the number of cases, but am told by a very reliable and intelligent nurse of the house that almost all attacked died. For four weeks the wards were vacated and every means used to disinfect the place.

In 1855, the disease again appeared and lingered in the wards for three months, carrying off almost all puerperal women attacked. Dr. Penrose, who has some valuable tables in course of preparation, informs me that there have been cases of this formidable disease in the obstetrical department every year, from 1841 to 1858, except the years 1844 and 1845; and that since the change in the medical administration of the institution he is not cognizant of a single case having occurred. This exemption he attributes to the sanitary measures advised by himself and colleagues.

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[1] A careful examination made after writing the above shows 255 deaths to have taken place.

The children's asylum has often been invaded by destructive epidemics. The first one recorded was in April, 1835, the year after the children were moved to the present house. This was *cancrum oris*. That the mortality was large may be inferred from a single allusion, in which it is stated twenty children had died in nine days from the disease. The existence of the affection and the fatality were in a great measure due to the very imperfect organization of the department. Dr. Hodge, who declined this year to attend the asylum any longer, addressed the managers on this subject, advising as an act of imperative humanity an immediate attention to the interests of this department. Among the suggestions made were the appointment of a resident physician exclusively for the asylum; the selection of experienced and conscientious nurses; more room and ventilation; and more hospital convenience.

The other diseases peculiar to this period of life, which have frequently from time to time existed, are ophthalmia, measles, and scarlet fever.

On the 26th of November, 1804, the managers arranged for the first time a diet table for the use of the house. By this table every pauper in the medical, surgical and incurable wards was allowed for

BREAKFAST.

1 pint of coffee or 1 pint of chocolate; ¼ lb. of bread.

DINNER.

¼ lb. of meat; 1 pint of soup; 1 lb. of potatoes; ¼ lb. of bread

SUPPER.

1 pint of tea; ¼ lb. of bread.

Every other pauper on Sunday, Tuesday and Thursday received:

BREAKFAST.

1 pint of coffee or 1 pint of chocolate; ¼ lb. of bread.

DINNER.

¼ lb. of bread; ½ lb. of meat; 1 pint of soup; 1 lb. potatoes.

SUPPER.

¼ lb. of bread; 1 pint of tea.

Every pauper on Monday received:

BREAKFAST.

1 pint of coffee or 1 pint of chocolate; ¼ lb. of bread.

DINNER.

1 lb. potatoes; 1 qt. of hash; ¼ lb. of bread.

SUPPER.

1 pint of tea; ¼ lb. of bread.

On Wednesday and Friday:

BREAKFAST.

1 pint of coffee or 1 pint of chocolate; ¼ lb. of bread.

DINNER.

Mush at pleasure; 3 gills of molasses to ten persons.

SUPPER.

1 pint of tea; ¼ lb. of bread.

For the lying-in wards every day in the week:

BREAKFAST.

¼ lb. of bread; 1 qt. of coffee or chocolate.

DINNER.

¼ lb. of bread; 1 lb. of potatoes; meat as ordered by physician.

SUPPER.

¼ lb. of bread; 1 qt. of tea.

In this table there is a fair amount of food to each person, but very little variety. There is no subject connected with the administration of an institution of this kind more important than the one under consideration. It is adopted by many as a foregone principle that the objects of public charity should be confined to the simplest, coarsest fare in quality; and in quantity as moderate as may be consistent with their needful support. (I may add here in parenthesis, that I do not make any charge of such views against the board of guardians.) Connected with this subject, I conceive there are very nice questions of moral ethics and political science involved. I presume, both as regards clothing and food, the justification is drawn from the fact that the inmates of these public charities are compelled in consequence of their misfortunes being self-inflicted, the result of their own vices and evil habits, and therefore they surrender any claims to the protection of society beyond that of a mere support. This is not the place to discuss a subject of such ample nature. Let me only throw out a few thoughts in passing which may aid us somewhat in its proper treatment. What is it which makes us differ from the most degraded inmates of this house? Nothing; really nothing, but the grace of God. Will any one doubt that the chief instrumentalities concerned in giving him position, reputation, moral and social standing in society, were the influential operations of parental care and tenderness, extended during those years when the human character is as plastic as the clay in the hands of the potter, and still later, when the forecast of friends had provided for personal comfort, and aided in the formation of associations salutary and restraining? These, gentlemen, more than any natural endowments, have made you what you are. Now look on the other side of the picture. The vast proportion of the inmates of this house have never enjoyed such all-controlling agencies. Born most of them in humble life, with perhaps a vicious training, thrown on the world to their own resources during the most impressible period of existence, with unformed characters called to struggle with all the temptations incident to a life of obscure want and toil, and without the sympathy of either men or government, is it a marvel, that with such a moral organization as the race carries with it, these creatures should be driven to shipwreck by the tempests which come up from the human heart? These considerations at least commend them to our generous sympathy and charity, and to this end God has wisely implanted in the human heart a principle to compassionate misery and misfortune in all their multiform aspects. Whenever, therefore, disease or decrepitude, either of mind or body, the result though it be of vicious habits, compel such to seek an asylum at the hands of their fellow beings, whatever other claims they may have forfeited from law or society, that to the support of life they have not. The diet, therefore, it would seem reasonable should be in quantity, quality and variety, such as is capable of maintaining the best possible health consistent with a broken-down constitution. The diet should be determined after a careful study of the constitutional characteristics of the population, prevailing disease, and their usual complications. Looking at the subject in an economical point of view, that regimen will prove the most desirable which exerts the largest influence in keeping the inmates out of the hospital, as by the report for 1862 it will conserve the difference between seventy-two cents and two dollars.

In conclusion, gentlemen, it is difficult to over-estimate the importance of this institution, to either the profession or the community. To say nothing of the multiform types of destitution and want which it meets and relieves, look at the field which it offers to the disciple of medicine, and which no man will lightly esteem who contemplates the prosecution of his profession with a conscience void of offence towards God and man. There is a hospital, in which over eight thousand cases of disease are treated annually; a children's asylum, offering illustrations of all the complaints incident to this period of life; and there is an obstetrical department, in which as many as seven cases of labor have occurred in twenty-four hours, and where in the last thirteen years over two thousand six hundred children have been born. One year industriously spent in this institution will yield in medical experience, the fruits of ten years gathered from an ordinary practice. But to place the statement in another form: a graduate of medicine faithfully improving for a single year his opportunity for study of disease in the wards of the Philadelphia Hospital, will be better fitted to assume the responsibilities of his profession, than one who labors ten years in an ordinary city or country practice.

REMINISCENCES OF THE PHILADELPHIA HOSPITAL.[1]

By ALFRED STILLÉ, M.D.

GENTLEMEN:—Let me thank you for the compliment you have paid me in making me the first president of your association. I hope that it may flourish for many years to come, and bind all its members to sustain the past, present, and future reputation of the great hospital in which we have all had the honor and advantage of cultivating the art of all arts, the "art of healing." I shall make no attempt to present to you the history of the almshouse hospital, for this work was thoroughly done by Professor Agnew in an introductory lecture to his clinical course at the hospital in 1862; nor shall I pretend to do more than retrace for you an outline of some of the features of the institution as I knew it more than half a century ago. The memories of youth are apt to outlive those of middle age; and certainly many events of my first hospital experience are as clear and vivid in my mind to-day as if they had occurred but a year ago, while not a few of the intervening ones have faded quite away.

In 1836, the buildings composing the almshouse, except the additions to the southernmost one, were substantially the same as now, but the uses of some of them were different. The southern building was then entirely occupied by the hospital—its eastern half by the male, its western half by female patients—while in the centre was the lecturing and operating amphitheatre. The east return wing was filled with insane males, and the west with insane females. The apothecary's shop was on the ground floor of the same building. The lying-in wards were in the west end of the building forming the northern side of the quadrangle, and the children's asylum in the corresponding part of the east end.

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[1] Address made by Dr. Stillé, as first president of the association of the ex-residents of the Philadelphia Hospital, December 6, 1887, at the dinner given by them at the Bellevue Hotel, Philadelphia, at which sixty were present. A brief account of this association will be given later.

I lived in the children's asylum, of which I had special charge, although I had also charge of medical and surgical wards in the hospital itself. If I were asked what half-year in my professional life was the happiest, I should reply the period that I lived in that asylum. I occupied a vast chamber that looked out upon green fields and a fair river, with a view of the city beyond them. I had no companions to disturb me; I was aflame with the desire of knowledge, and all my time was eagerly devoted to the study of disease and of books.

The board of managers of that day was certainly not composed of very refined men, but they were, according to their lights, competent, and very different from the vulgar, corrupt and venal body which in later years mismanaged the institution. I can recall several of them who were conspicuous for exhibiting their power in season and out of season, not only over the paupers and patients, but over the medical residents also. Ignorance and coarseness have a natural repulsion for knowledge and refinement, and the feeling is more or less reciprocated. Very seldom, indeed, is there a cordial harmony between hospital managers and resident physicians. The exercise of power is as dear to the one as intolerance of it is natural to the other. The one lacks sympathy and the other humility.

It would hardly be credited, were it not unquestionably true, that this great clinical school was closed for nearly ten years, because in 1845 the resident physicians were shocked by a cockroach upon their dining table, and not obtaining redress for their offended delicacy, they incontinently resigned. One cannot but pity a susceptibility that would allow such an incident to imperil the success of a professional life. But we cannot expect to find old heads on young shoulders, nor even the most righteous cause to be temperately promoted.

Another incident may be used in illustration. The president of the board of guardians was the bugbear of the whole establishment, from the steward down to the most abject pauper who had no home but the almshouse. It was natural that some of the quick-tempered and high-minded house-physicians should resent the pompous tyranny of this man, and occasions enough for doing so occurred. Of these I may recall one or two. South of the hospital in those days was a large flower and fruit garden which the guardians reserved for the sole enjoyment of their senses and appetites, and which all other persons, including the resident physicians, were as strictly forbidden to enter as were Adam and Eve to return to the garden of Eden. One of the residents it seems, not having the fear of the guardians before his eyes, had the audacity to enter the sacred precincts and appropriate a few peaches and roses. A mighty clamor followed, only to be compared to the outburst of Mr. Squeer's wrath when Oliver asked for "*more*." I do not remember what the upshot was, but certainly not "the brown paper parcel full of groans" which was the net result of the English school boy's flogging. My impression is that a special edict was issued against trespass upon paradise, and signed with the vermilion pencil of the great Mogul of Blockley almshouse.

In those days the residents boarded at the steward's table; the meals were always good, and on Sundays and on the days when the board of guardians met, they seemed to us both sumptuous and abundant. On Sunday, when everything and everybody is later than usual, it happened that the residents were not always punctual to the dinner hour; but the president of the board and some of his colleagues, who were not apt to be behindhand at the feast, were so annoyed by the young men's unpunctuality, that they issued an ukase proclaiming that all the residents who did not arrive within a certain time should be denied a passage through the gates in the yard fences, and be thereby compelled to reach the steward's quarters by passing through the paupers' outwards. This indignity was hotly resented, and one summer day a resident physician, being detained by his duties, found the yard door closed between him and his dinner, and was told that he must reach the steward's apartments through the paupers' wards. After parleying for some time, and then sending a request to the president of the board to permit his passage, which was denied, he retreated a little, and with a rush, kicked the door open, and made his way to the dining-room, where he reported to the president of the board what he had done. This gentleman was so amazed that he made no reply, and the combative resident was never called to account for taking the law into his own hands.

As I have said already, I had special charge of the children's asylum, and lodged in it. It was a very interesting field for me from a humanitarian as well as a medical point of view. A hundred or more children were sheltered there on their way to the early grave to which most of them were destined. Illegitimate and other outcasts formed the majority, and ophthalmia, that curse of children's asylums, made of them a blear-eyed, puny crowd, most pitiable to see. I soon became convinced of the causes that produced the crippling and mortality of these outcasts and waifs. I pointed out to the committee of the board how the disease was disseminated by the children washing in the same basins and using the same towels, and how it was maintained by their having no shaded places for exercise in the open air, and also by the insufficient food permitted them; for if the soup which they received one day was nutritious, the meat of which the soup had been made, and which formed their dinner on the following day, must necessarily be nearly devoid of nutriment. But, of course, the committee on the children's asylum and the guardians knew better than I, and at the time, at least, nothing was done to correct this wrong. In my day Dr. Joseph Pancoast was the attending physician of the children's asylum, and it is pleasant to me to recall the cordial relations which I there began with him.

I might digress here to speak of my colleagues in the hospital, and of some of those who immediately preceded or followed me. The list of them as I remember it was the following: Asa Frisby, of Mississippi; Thomas J. Turpin, of Maryland; John H. Fromberger, Robert R. Porter, and Louis P. Bush, of Delaware; William Elmer, of New Jersey; William P. Johnston, of Georgia, and later, of Washington, D. C.; Robert Morris, Benjamin Stillé, Joshua M. Wallace, Henry S. Patterson, Charles Bell Gibson, Edmund C. Evans, Charles N. Egé, and John B. Biddle, of Philadelphia; and Joseph Walker, of Bermuda.

Of these there survive only Dr. Bush, Dr. Elmer, and Dr. Morris. The last never became a practitioner, and after a few years pursued literary rather than medical studies; but Dr. Bush was long a leading practitioner of his native town; and Dr. Elmer, of Bridgeton, N. J., and the surrounding region. Of the rest, Johnston, Wallace, Gibson, Patterson and Biddle obtained distinction as teachers of medicine, and the others were successful in practice. I have never doubted that they all owed their success in a very large measure to two of the gentlemen who were then attending physicians to the hospital, and I, for my own part, am happy to recognize my share of this standing debt. These two physicians were William Woods Gerhard and Caspar

Wistar Pennock. Both had studied in Europe with great distinction, and had enjoyed unusual opportunities for clinical study at home and abroad.

Dr. Pennock by his experiments upon the physiological action and sounds of the heart, and by his clinical researches in cardiac disease, preceded other American physicians in this field, and inspired with his own noble enthusiasm all who became his pupils. No nobler, purer, more unselfish man ever lived; but he was lost to medicine many years before his death by the steady progress of a disease of the spinal marrow. His colleague, Dr. Gerhard, had been a resident physician of the almshouse hospital while it was still in the centre of the city, and the great clinical school of Philadelphia. In its wards he made numerous important investigations, and among them experiments on the endermic action and absorption of medicines. Thence he went to Paris well accoutred for the study of clinical medecine under Louis; and among other fruits of his Parisian studies he contributed largely to the pathology of tubercular meningitis.

His familiarity with typhoid fever gained in Paris, and with typhus fever which he studied in Great Britain, prepared him for a thorough investigation of them on his return to this country, and especially for becoming the historian of the epidemic of typhus, which furnished hundreds of patients to the Philadelphia Hospital in 1836. In spite of the extreme contagiousness of the disease, and the great mortality which kept everyone busy with examinations post-mortem, the enthusiasm of master and pupils knew no bounds. The history of this epidemic was afterwards published by Drs. Gerhard and Pennock, and to this day remains the earliest, as well as one of the most perfect and original demonstrations of the specific differences between typhus and typhoid fever.

Dr. Gerhard's bedside instruction in physical diagnosis was also followed with zeal, and happy did his pupils esteem themselves in having as a teacher one who had drawn his knowledge from the very fountain head in Paris. For in those days there was a far greater gulf than now fixed between those whose knowledge had been gained abroad and those whose education had been domestic only.

At that time also, and through Dr. Gerhard's skill, a radical reform occurred in the treatment of *mania-a-potu* and *delirium tremens*. Indeed, to him and to the wards of the Philadelphia

Hospital is due the abandonment of the murderous use of opium in those affections and the substitution for it of well seasoned food and alcohol, generally in the form of porter. He was enabled to prove that both the primary and the secondary effects of drunkenness tend to terminate in cure, and that they ought never to be fatal in uncomplicated cases.

Among the patients who came periodically under his care for such effects of intemperance was a certain M.D., a man of good education and some wit, who was so charmed by the new method that he exhaled his pleasure in the following doggerel verses.

THE WONDERFUL BOOK,

OR JIM CROW, DAVY CROCKETT, AND MAJOR JACK DOWNING SWEPT FROM THE READING WORLD IN A BLAZE OF SCIENCE BY A. C. DRAPER, M.D.

Ye knights of the lancet for knowledge prepare ;
A brother of talents and learning most rare
Has determined no longer his fingers to crook,
But enlighten the world with a wonderful book.

Six months is the time he has wisely assigned
To usher to light this great birth of his mind ;
Some granny bookseller accoucheur will act,
As deliv'ring a doctor requires much tact.

In a fit of the horrors the book was begot,
That from mania-a-potu will rescue each sot,
And save almshouse doctors the trouble and care
Of prescribing for those mania fills with despair.

And who can dilate on disease of the Cells
Like him who so oft in their solitude dwells,
And worships fair science within their bare walls,
Unmindful of home or his patients' loud calls?

Ye men of cold water, avaunt! quit the field!
To brandy and porter he'll force you to yield ;
And as to the swill you have christened hop tea,
With the stomach he swears it will never agree.

'Bout hops he is certain you're sadly at fault ;
'Twere better to brew them at once with good malt,
The prescription no patient would ever bewail
If it came in the shape of good Albany ale.

Should the doctor once more for humanity's sake
Get blue, on his system more lessons to take,
It is hoped the physician who 'tends to his case,
To cure him with brandy the chance will embrace.

And who, to teach others, such perils would court,
Treating life as a thing only given for sport?
Not one out of twenty his studies would try,
Not one in a thousand for science would die.

When he's quite convalescent and home would retreat,
Never try to regale him with tea made of meat;
For nought to his stomach affords such relief
As a bottle of porter and a pound of good beef.

And the names of the doctors who please him will grace
In letters of gold his book's learned preface;
Prescribers who value a medical fame
Must feed him with brandy to get a good name.

At the period of which I am speaking blood-letting was still in vogue. The absurd theories of Broussais were still dominant, and the "hand-over-hand bleedings" of Bouill I soon afterwards witnessed in Paris. I may truly say that when I think of blood-letting at the Philadelphia Hospital fifty years ago, I shudder—*horresco referens.* Adults were bled in all manner of diseases by venesection, cups and leeches, and even the miserable cachectic children did not escape the bloody sacrifice. I have seen a chronic lunatic strapped in a so-called "tranquillizing chair" and bled *ad deliquium.* To this day I have on my own person a scar that attests my own ignorance and the presumption of one of my equally ignorant colleagues, who bled me for some trifling ephemeral fever that did not even confine me to bed. From the beginning of my own private practice in 1841 to the present day, I have not practised venesection a dozen times.

The management of the insane department at the time of my service was as devoid of medical knowledge and humanity as was possible, and there, as also in institutions that falsely laid claim to being pioneers in the humanitarian treatment of the insane, cruel repression took the place of rational and humane management. I have still vividly in my memory pictures of raving maniacs in straight-jackets strapped to their bedsteads or bound to massive chairs, while bladders of ice were applied to their shorn scalps. I still see before me the narrow shelterless yards of the hospital filled with a mingled crowd of gibbering lunatics, many of them wearing leather muffs, while others wandered in melancholy vacuity around their narrow prison—with nothing to occupy, nothing to amuse, nothing to improve them.

So profoundly and painfully was I impressed by these inhuman horrors, that I prepared for the grand jury of the time a paragraph for insertion in their presentment, urging the legislature to provide for the better accommodation and treatment of the insane in the almshouse. It was only many years afterwards that any efficient measures were instituted for even lessening this blot upon the name of a city that piques itself on the abundance of its good works.

I have but lightly touched upon some of the points that are most prominent in my memory of my first hospital residence. Many others are recalled by them—events, names, persons, that had apparently been forgotten; but I resist the temptation to make the procession pass before you. I have already trespassed too long upon your time; and so, thanking you for your courteous patience, I leave to others the sad but pleasing duty of piecing out my reminiscences and continuing them with their own.

ADDITIONAL REMINISCENCES OF THE PHILADELPHIA HOSPITAL.[1]

By ALFRED STILLÉ, M.D.

Mr. President and Gentlemen:—I rise to respond to the toast you have heard read, but let me add, it is under compulsion—moral compulsion I mean, which is sometimes more constraining than physical force. Your committee of arrangements was good enough to say that my semi-centennial reminiscences of last year gave pleasure to the guests, and they founded thereon a suggestion that more of the same sort would be acceptable. But they probably forgot that there is a natural limit to such recollections; that they cannot be produced at will, and that between my friend and ancient colleague, Dr. Bush, and myself, the garner had been pretty thoroughly emptied. Indeed, it seems to me that any slight addition I might make to the picture will be flat and meaningless if torn from its original connections, just as a garment would be if removed from the body to which it belongs.

And yet all of you who have passed through the discipline of our great hospital, even recently, must have observed that besides the atmosphere of science and art, and besides the discipline and the comradeship, which together constituted its training as a professional school, and which cannot fail to shape and color your whole career, there are some others which cling to the memory and even to the senses, and are strangely powerful to resuscitate impressions long ago received and apparently extinct. Philosophers have contended that our sensations are most numerous and permanent, some when we receive them through the sight, and others through the hearing; but I am disposed to think the olfactory sense retains longest of all the impressions made upon its organs.

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[1] Address made by Dr. Stillé at the association of the ex-residents of the Philadelphia Hospital, December 4, 1888, at the dinner given by them at the Bellevue Hotel, Philadelphia. Response to the toast, "The Residents of Auld Lang Syne."

It seems to me that the almshouse smell must be immortal, or can only "by annihilation die." It is, or was, a smell sui generis, for every hospital has its specific smell. Certainly it has no resemblance to the smell of rose, or violet, or lily, nor, on the other hand, is it borrowed of asafœtida or cacodyl. It is a smell that one may recognize as a familiar acquaintance in the prisons of Naples or in the Edinburg infirmary. The smell of a civil or military hospital has its characteristics, but the effluvium of a pauper almshouse hospital has a much intenser quality. It is compounded of the exhalations of the habitually great unwashed; of effluvia generated by the decay of the sick, and the decomposition of their excretions; of the stale or rotting food that has been accumulated surreptitiously and hidden away; of steam from the meat caldron and emanations from the bakehouse or the fresh bread; from the heaps of musty old boots and festering garments thrust out of sight and fermenting in unopened closets; and then, mingling with and overlaying all of these, a certain medicinal odor which may be traced to the accumulation of tinctures, and mixtures, and unguents, and plasters, upon the bedside tables of many patients. It is not what perfumers call a bouquet, which plays a gamut of delight upon the olfactory sense, but an acrid, fœtid, sickening, musty, fusty, and above all, frowsy smell, more complex in its combination than the most ingenious compound of the perfumer's art. It is the pervading genius loci, and never is to be encountered outside of the walls of a pauper hospital. You cannot sweeten it; you cannot altogether expel it.

> "You may scrub, you may ventilate wards as you will,
> But the smell of the almshouse will cling to them still."

It can "only by annihilation die;" by a fire that should consume the whole building. But the remedy is too costly.

No doubt in progress of time this odor has lost something of its acrimony, for during my service as a visiting physician (1866–72) its pungency had perceptibly declined. This improvement was immediately due to two members of the board of guardians. One was its president, John M. Whitall, a plain man of strong common sense, an expert in the art of ventilation, and a guardian, who, with some of his colleagues, kept the board from plunging into the quagmire of politics. The other was Mr. Parker, an iconoclastic reformer, whose zeal sometimes outran his discretion, but whose efforts to reform were so persistent that he came to be felt as a thorn in the guardians' side. They could not tolerate his continual pricking, and when his term of service expired they took efficient means to prevent his re-appointment.

As everybody knows, one gets used to foul smells, and at last ceases to notice them. Indeed, some persons seem rather to thrive in a contaminated atmosphere. So it is said that scavengers and night-soil workers acquire an immunity to certain diseases. In like manner, the inhabitants of the Nile and the Mississippi basins are said to prefer the muddy water of those streams to clear and sparkling mountain brooks. But it does not follow that the ignorant and stupid and careless should be allowed to sacrifice either themselves or those who are under their care. I cannot doubt that the day will come when it shall no longer be thought any more consistent with humanity and benevolence that almshouse paupers and hospital patients and their physicians and attendants should breathe a noisome and pestilent air, than it now is to chain maniacs to their cell walls, or strap them in "tranquillizing chairs," as was not long ago the custom.

Looking back at the far distant period when I was a resident physician of the Philadelphia Hospital, I am as much surprised at the definite portraits in my memory of certain of the inmates of that time, as I am at the distinct impressions retained by my olfactory senses. Although I have seen scarcely any of them for half a century, I think that if I were a draughtsman, I could outline the faces and figures of many among them, beginning with steward Stockton, whose grave and weary, but benevolent features, were hardly ever lighted by a smile, and ending with the "Captain," who reigned in the region of the dead, and enlivened his lugubrious occupation by frequent trials of strength with Bacchus, in which the man was uniformly worsted by the fiery god. It would seem that there must be some natural connection between dead-house men and spirits, for I remember that one winter, while I was a visiting physician, the river was full of ice, and the dead-house official of the time not clearly distinguishing between it and terra firma, plunged into the water and was drowned. His body was brought to the house the next day. It had a bright, ruddy color, and all the limbs were placed as if the man had died in the act of climbing. So life-like a corpse I never beheld.

Among the nurses, I most distinctly remember the matron of the children's hospital, where I lived. She was a quiet-spoken, motherly person; but the zeal of her office did not eat her up. She had a too wholesome dread of daring to have an opinion in the presence of the committee of the board. She had two acolytes, Nancy, the nurse, who nearly lost her sight by contagious ophthalmia, and afterwards entered the service of one of the physicians of the house and brought up all his children; and Jane (I think that was her name), who had that stupid, astonished good nature peculiar to some of her country-folk.

Then there was the big, burly, apoplectic looking head nurse of the male insane department. He enjoyed the monopoly of leeching and cupping all over the house. It shakes my faith in medicine to think what sanguinary floods we then believed it necessary to shed! This man ruled his own particular kingdom with an impartiality of severity most edifying to those who believed that maniacs are possessed with devils.

I think I can see old mother Hardy of the female venereal ward peering through the big, round glasses of her spectacles; a stern, yet kindly shepherdess of poor sheep that had gone astray, and found more thorns than flowers in the primrose paths of pleasure.

Ah well! these reminiscences are, I know, less interesting to you than to him who gathers them, for he was himself a part of them. They have been woven into his life, and none but himself can understand or thoroughly feel them.

And let me be allowed to say to my younger brothers, do not let the impressions of your hospital life ever grow dim. Recall them for the entertainment of your friends and for your own solace. Preserve them for the time when you, like myself, shall have rested from the more active and arduous labors of your profession; and then

"Forsan et hæc olim meminisse juvabit."

[During the last few years the almshouse smell has almost disappeared, a result due to the earnest efforts of the governing board, the superintendent, and physicians-in-chief, aided by the medical board and the nurses' training school. The erection of improved water closets with proper sewer connections has had a most wholesome effect.

REMINISCENCES OF THE PHILADELPHIA HOSPITAL, AND REMARKS ON OLD-TIME DOCTORS AND MEDICINE.

By LEWIS P. BUSH, M.D.

Mr. President and Fellow-Members of the Association of Ex-Resident and Resident Physicians of Blockley Hospital:—One year ago we met to talk over the scenes and incidents, "grave and gay," of the Blockley Hospital within the last half of the century; some fresh and strong in memory, others fading into the dim vista of a "long time ago." A few of 1837 still remain—how many of the years before, if any, I have no knowledge. Should the roll of 1836–37 be called, who could respond but Stillé and Elmer, and I presume Morris, the former of whom I am happy to find with us this evening. What shall we say of Frisby, Johnson, Fromberger, Gibson, Egé, Walker, Wallace and Boyer? They are not here—most of them, as I believe, gone beyond the sound of human call. Whether joyful or sorrowful, may I not spend a few moments in passing a simple tribute to the memory of several of them?

William P. Johnson, of Savannah, Georgia, was graduated in the University of Pennsylvania in 1836, settled in his native place, but afterward in Washington, D. C., where he became engaged in a large and successful practice, and became professor of obstetrics in the Washington College, which place he filled for twenty years. He died about the year 1880, broken down by the labors of his profession, and lamented by a large circle of friends, acquired by kind and unremitting professional attention.

Address made by Dr. Bush, of Wilmington, Delaware, at the dinner of the association of ex-resident physicians of the Philadelphia Hospital, December 4, 1888. Dr. Bush and Dr. Stillé were resident physicians in 1836, and are probably among the oldest, if not the oldest, living ex-residents.

Asa Frisby was a sober and solid Mississippian, who also was a graduate of the University of Pennsylvania in 1836; he was elected the same year to the hospital staff; he passed with us through the typhus period, of which both he and Johnson had an attack, the former severely, the latter lightly; and went to Natchez at the end of his service, where he died a few years afterwards of yellow fever.

John H. Fromberger was a graduate of the same school in 1835, and became an interne of Blockley; he settled in Delaware, was successful in obtaining a large practice, and died in Florida, where he had gone on account of ill health.

Charles Bell Gibson, son of professor William Gibson of the University of Pennsylvania, was graduated there in 1836, and was an interne of Blockley previous to and after his graduation; he removed to Richmond, was elected professor in the medical school of that city, and died at the early age of fifty. Of the remaining confrères of that company I have but little knowledge.

John F. H. Patterson, a graduate of the University of 1835, an interne of Blockley, a professor in the medical college, died about the age of 50—an energetic, earnest, bright man.

Joshua M. Wallace, brother of Ellerslie, a University student, graduate of 1836, a genial, whole-souled fellow, was an interne but for a short time, when he was transferred to the staff of the Pennsylvania Hospital; he died early of pneumonia.

It is unnecessary to go over the ground which was brought before us a year ago. As usual, in the checkered scenes of life, there were many things which we recalled with pleasure, growing out of our intercourse with each other; others with emotions arising from what we considered a want of appreciation of what was due to us, for no doubt the most of the board esteemed us a parcel of fellows of no particular status, either in the medical or political world (and perhaps they were not far from wrong), while we, of course, thought ourselves of far more consequence than the most of them—elected as they were by either the whig or the loco-foco party—and who, we supposed, cared more for the monthly or quarterly dinner than anything else that pertained to the institution. I allude now to our sentiments after our election—of course previously we had treated them with profound respect. Altogether we have the confident conviction that we there laid up an amount of pathological and practical knowledge which has served as a reserve during all the subsequent period of our lives. While we look back with due appreciation of what was gathered up at that time, we are far from acceding to the sentiment so charged, and not always unjustly, to that fragment of our race who have attained the three score and ten limit, "that the old times were better than the present;" nor yet do I feel quite ready to subscribe to the dictum of a medical friend, "that we were born fifty years too soon." As for the future, it is wrapped up in an impenetrable scroll; and the reveries of those who assume to make out the progress of the coming century are vain and vapid—it is enough for us who can look back for more than half a century to admire with grateful and fervent hearts the wonderful progress of human ingenuity and research; the power of the human mind in compelling the acknowledgement of the rights of man; the elevation of the down-trodden at home and abroad, and the increasing instability of tyrannical thrones.

Is it possible that the coming half century can offer more glorious exhibits to the wondering minds of its inheritors than the past has shown to us? But we are here as physicians, not merely as citizens of this great republic, from whose heights we overlook not only what is taking place immediately around us, but can take in from most favorable positions the aspect of the whole world panorama.

Long before the dawn of life upon any of those now present, our profession experienced the slow advance made by theory and empiricism, not only from ignoble, but also from noble minds in their earnest gropings after scientific truth and its application to the healing art. Foremost among the latter stands the "father of medicine," whose name shines forth brightly amidst the dim and obscure clouds of ignorance and superstition which enveloped the age of Hippocrates. It was a true philosophy which he inculcated; a philosophy founded upon observation and induction, rather than upon mere theories; but it is not now proposed to speak of that age, that we had over and over again from the lips of our venerable professor in the University, Dr. John Redman Coxe. Having passed the stormy days of 1845, *requiescat in pace.*

Let us come far down the stream of time towards the present century. We now meet with such men as Sydenham, Cullen, Huxham—strong, original thinkers, who used all the knowledge they gathered to the best advantage, and left traces, not yet obliterated, upon the broad field of literature.

Misty and obscure enough were the notions even of those upon whom we still look back with a degree of reverence as being in the front rank of their contemporaries. Doubtless they themselves felt that great darkness surrounded them, and that their vision penetrated it but feebly; and that it was after all but imperfect experience and worse theory which they were obliged to promulgate.

When Dr. Samuel Jackson was asked why he did not publish another edition of his work on physiology, a work written in that graceful and pleasing style which marked all the productions of his elegant mind, he replied, "It is sufficient that I state my views in my lectures—they will last as long as they are worthy to be remembered." "Don't tell me," said John Hunter, "that my teachings last year were different from what you have just now heard—these are my present opinions." Such men were true philosophers; they were aware of the imperfection of the deductions of their day; and were wide awake to scrutinize every new fact; and even peered longingly into the future for the developments which their minds but feebly anticipated. No one perhaps of Dr. Jackson's period felt more sensibly than he the dimness of the light of that period, or longed more earnestly for the evolution of more truth in medicine than he could command.

If we would judge of the men of those days, we must, if possible, come down from our advanced position, and take place among the fogs and obscurities which surrounded them; and putting on their spectacles, carefully scan the scene which would then present itself. For myself, a feeling of sadness comes over me when I reflect upon the disadvantages of the true philosophers in medicine of even half a century ago, and doubtless some of us will be the subjects of the same sympathetic sentiment by those who will live a century hence, when many of the works which have been built up with so much labor in our time, will have had written upon them "TEKEL."

But I have said that it is not a subject of regret to some of us, that we are not just now entering upon the stage of life. We have had the satisfaction, which the younger members of our profession can never fully appreciate, of watching the wonderful developments of science—we have seen the rise of theories and empiricisms, as each in turn called out its followers, "Ho, here's the throne of truth!" We have seen the light of these false prophets, which was but little better than darkness, melt away into its own proper realm of utter obscurity; while we have also observed the chariot of truth slowly advancing, dimmed at times by the clouds of error, but again and again coming into brighter vision, as around it glowed the true light of scientific research.

We need but to revert to the student days of some of us, and consider what were the teachings and the notions regarding fevers which were advanced from the rostrum, where stood the fine form of Chapman, setting forth in beautiful style and language the varieties, causes, treatment, etc., of these diseases. In nothing was both teacher and student more perplexed than in these forms of disease. If you look into the treatises of those days, you will perceive how difficult it was to arrive at a diagnosis at all satisfactory. They brought before the reader all the theories from the days of Hippocrates down to their own times, and discussed them laboriously, and when they had arrived at the end of their travail, they brought forth only another theory.

Chapman divided his fevers into intermittent, remittent or bilious, and continued, which included synocha, synochus, and typhus. In Dr. Christison's arrangement we have primary fevers, synocha, synochus, mixed or nervous fever, and typhus or adynamic, and continued and intermittent. Is it surprising that the student should have been puzzled to vexation by an arrangement which afforded no standing point, nor any definite boundary at the ending, for, says Dr. Chapman, "as synocha passes by insensible shades into synochus, so the latter passes insensibly into typhus." With such a spectre as that before him, what wonder if the student should have been as much confounded as was Hamlet upon the appearance of the ghost of his father.

The treatment was always hampered by the idea of inflammation, no belief being entertained that such temperatures could exist without that basis, and as inflammation required depletion, emetics, venesection and purgatives were of course necessary. By various practitioners bleeding was resorted to in various degrees, from one to six pounds of blood at a dash. This was proposed as Dr. Chapman says, by Dr. Jackson, in his practice of medicine. I presume he means Dr. Jackson of Boston, as I am not aware that Dr. Samuel Jackson of Philadelphia, ever published a work on practice. All this was done under the impression that these continued fevers, as they were then called, could be arrested. Says Dr. Chapman again in glowing language, "Could I for a moment believe in the doctrine of our incompetency to cure fever—that all our efforts to arrest its progress are unavailing, that we must remain inactive and patiently watch the operation of the vis medicatrix naturæ till the disease spontaneously subsides, I would at once strike the flag of the profession, and cease to cheat the public by pursuing any longer a system of fraud and imposture." It would seem that with our present views of the self-limitation of typhoid and typhus fevers, we should be as honest as Dr. Chapman asserts himself to have been; but there is no necessity for that, enough remains to be done, even with as much empirical treatment as yet remains with us, to conduct a case of typhoid fever through its slow and tortuous course, even though we adopt the wise course "to give nature a chance."

If we go on a little further we find that typhoid fever was altogether unknown as a distinct disease. Even after the light which had been thrown upon it by Brettoneau, Louis and Chomel, many of those both in England and in this country who had been imbued with the old notions could not bring themselves to believe that typhoid fever was anything else than one form of continued or synochus fever. When we of that day, in the Philadelphia Hospital, stood by the bedside of our typhoid fever cases with Drs. Gerhard and Pennock, and had pointed out to us their diagnostic symptoms; and had disease in the glands of Peyer verified in the autopsy; and when the petechial typhus came among us from the ships from Ireland and from Philadelphia's summer streets, and we had shown to us the differences and the differential diagnosis of these two diseases, with the confident assurance that, in the typhus cases, we should find no disease in these glands, a new and clear light dawned upon us as to the specific and distinct character of the two affections. At once was dissipated the obscurities which had hung around us in regard to these fevers, and each stood out before us—individualized. No argument or description could so effectually have convinced us of the truth of the diagnosis, as did such demonstrations from the book of nature.

I think that I am not mistaken, and, if I am, can be corrected by my friend Dr. Stillé, that Dr. Samuel Jackson and Dr. Lawrence were the first in this country to describe the ulcerations in the intestines, which they found in their patients who had died of an epidemic fever which prevailed along the Schuylkill about the year 1824; but they could go no further than to describe what they had seen, without, however, arriving at any conclusion as to the meaning of the pathological appearances. I may state that Dr. Jackson frequently expressed his regret that the record of the autopsies made by Dr. Lawrence had been irrecoverably lost. Dr. Lawrence fell an early victim to his devotion to pathology.

These certainly were very important steps; but having gone thus far we are met by the recent microscopic investigations into the causation of disease, not only of those fevers of which we have been speaking, but of various other zymotic diseases, and have before us new fields opening which promise to yield rich fruit, both in pathology and therapeutics. Here, indeed, we are amazed not only at the scientific problems which seem to be in course of solution, but also at the anticipation of practical results which, if realized, will throw idto the shade all that has been heretofore accomplished.

If I might be permitted to go a little further in an exposition of the difficulties which surrounded those who immediately preceded us, I woulu cite those connected with diseases of the chest. Dr. Chapman, whose acquaintance with the literature of the profession will hardly be challenged, had come to the conclusion that pneumonia and pleurisy were the same disease, requiring about the same treatment. He remarks: "of all the diseases to which the human frame is liable, with the exception of cynanche trachealis, this is perhaps the best understood and most easily managed." If that were true at that time, our knowledge in respect to this disease has woefully degenerated. Our diagnosis we insist is incomparably superior to his, for we can look, as it were, into the lungs and pleura, and define precisely their condition, but we cannot adopt his words. His heroic treatment by profuse and repeated bleedings we utterly discard, while at the same time it may be fairly doubted whether in all cases venesection is an improper measure, even admitting the ordinary tendency of pneumonia to terminate by crisis or lysis. It is easy to understand how superior our diagnosis is by the use of auscultation and percussion, to which the ear of the world was deaf until Laennec explained the language of thoracic sounds. While great advances have been made in medicine, we are yet upon the threshold of investigation and discovery.

We have appliances in the microscope and the laboratory for assisting us in questioning the anatomical and pathological structures of the human system, of which our predecessors knew nothing. As has been remarked, we have seen the gradual development of experiment and observation in this direction, and have admired the persistent devotion and enthusiasm with which observations have been conducted, which have added honor to human intellect; and we have rejoiced in the prospect of seeing still further developments of science and of practical results. Whatsoever cavil may have been made in former times as to the propriety of the use of the term "medical science," there ought to be none now, if careful and extensive investigation and wise generalization contribute toward such a claim.

We have seen the system of auscultation unfolded by the genius of Laennec, brought to such a degree of perfection that the recesses of the bony thorax are laid open even more satisfactorily than the contents of the abdomen, although the latter seems so much more accessible. Both heart and lungs speak to us of their pathology in a language which is as intelligible to the initiated as is French and German; but only intelligible when carefully studied as a language.

Then we are indebted to Dr. Bright for evolving the secrets of the kidneys, and we have learned something of the extensive influence which those organs exercise over the operations of the human organism. Still further, we have watched the wonderful advances in gynæcology (which can be appreciated only by those who had merely such light as from the lectures of Dewees, which was almost darkness); we have also learned much of the power of the uterus and ovaries over the nervous system; and have had placed in our hands such means and appliances as have enabled us to bring health and comfort to women, instead of the sadness and sorrow which they hopelessly endured for so many centuries —a relief which is only second to the moral and social elevation brought about by the divine agency of Christianity in raising her out of a woful degradation into the full dignity and honor of man.

Last, but not least, we see the efforts now being made to demonstrate that of the great causes of the mortality of the human race, the greatest is the want of pure air, pure water, and physical cleanliness, all of which we know have laid the foundations for disease and death, whereas before we could only imagine some latent and undiscoverable energy at the bottom of the whole trouble.

HISTORICAL MEMORANDA OF THE PHILADELPHIA ALMSHOUSE.

By CHARLES K. MILLS, M.D.

The most important medical facts relating to the period which his essay covers are given by Dr. Agnew, but to many events of interest he simply alludes, and to some of the details connected with the history of the almshouse system in Philadelphia, which are in a broad sense part of its medical history, he does not refer. In the following pages, therefore, some of the facts given will be in the nature of addenda to his history of the hospital. Some of the documents relating to the almshouse are of importance to an exact knowledge of the history of the institution; such, for instance, are: the act of 1828, for the erection of a new almshouse; the original deed of the property purchased by the city in Blockley township; the act of 1861 for the sale of the almshouse grounds or any parts thereof; and the ordinance of councils of 1883 setting aside a portion of the almshouse property for a public park. We have, therefore, at the expense of space, considered it worth while to give these documents, or large extracts from them. The history of the Philadelphia Hospital, with which this volume is particularly concerned, is so intermingled with that of the almshouse system in general, and with numerous official acts for the relief of the poor, that a knowledge of these is necessary to an understanding of the hospital and its relations. Descriptions of the almshouse at its three locations may prove of future as well as present value, as may also a consideration of the history of the various forms of government of the poor and of the institutions concerned with their care and treatment.

Dr. Agnew began his history at 1742, with the general statement that the Philadelphia Almshouse was at that time fulfilling a varied routine of beneficent functions, including hospital and asylum work. One of the first acts for the better provision of the poor in Pennsylvania was passed in 1700, and repealed by the Queen in council in 1705. A year later the assembly directed that the justices of the peace should annually appoint two overseers of the poor for each township; and also that a levy of one penny a pound should be made upon all real and personal estate of citizens, and four shillings a head not otherwise ratified.

In 1712, the common council ordered that a workhouse be hired for the employment of the poor, and the overseers were empowered to attend to this business. It is not certain that these directions were carried out. In 1713, however, the first almshouse was established, but it was strictly confined to the relief of the poor of the society of Friends. In 1717, the assembly passed an act authorizing the erection of a workhouse in Philadelphia, Chester and Bristol.

In 1729, in answer to a petition made to the assembly by the overseers of the poor and recommended by the city, one thousand pounds were loaned to the mayor and commonwealth for the purchase of ground and the erection of a building for the poor of the city. This money was received in 1720, and in 1721 or 1722, ground was bought from Aldran Allen for two hundred pounds; this was bounded by Third, Fourth, Spruce and Pine streets, referred to by Dr. Agnew as the "green meadows." The building was of brick and probably completed in 1731 or 1732. In it, besides an asylum for paupers, was established a hospital with accommodations for the sick and insane. From 1732 we can, therefore, properly date the history of the Philadelphia Hospital.

The immense growth of this hospital is well shown by reference to two facts. In 1767, according to Scharf and Westcott, 284 persons were admitted into the almshouse, and afterwards the number increased to 368. December 31, 1889, by the report of Mr. Robert Laughlin, president of the board of charities and correction, the entire population of the almshouse, including the hospital, insane department, men's and women's outwards, and the children's asylum, was 3,207. In 1888, according to the report of the chief druggist, 110,875 prescriptions were filled, a number, as remarked by Dr. J. W. White, then president of the board, probably greater than the business of any ten of the largest drug stores in the city. In 1889, the number of prescriptions compounded was 101,539. Large as is this apparent increase, however, it is not great in proportion to the increase in the population of the city.

BIBLIOGRAPHY AND LITERATURE OF THE PHILADELPHIA HOSPITAL.

With the exception of the medical history of Dr. Agnew no extended account of the Philadelphia Almshouse has been published; but facts with reference to it may be found in various volumes which deal with the local, medical, legal and official history of Philadelphia. We will give here a list of works, and a statement of some sources of information, which have proved of advantage to us and may to others.

LECTURE ON THE MEDICAL HISTORY OF THE PHILADELPHIA ALMSHOUSE. Delivered at the opening of the Clinical Lectures, October 15, 1862. By D. Hayes Agnew, M.D. Philadelphia: Holland & Edgar, printers, 54 North Eighth street, 1862.

A HISTORY OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA. By Joseph Carson, M. D. Philadelphia: Lindsay & Blakiston, 1869. In this well-known work of Dr. Carson the references to the Philadelphia Hospital are taken chiefly from Dr. Agnew's pamphlet, but a few additional facts of interest are mentioned.

INTRODUCTORY LECTURE TO THE CLINICAL COURSE OF THE PHILADELPHIA HOSPITAL FOR THE WINTER OF 1855–56. By Robert K. Smith, M.D. Published in pamphlet form. Philadelphia, 1855.

SUMMER MEDICAL TEACHING IN PHILADELPHIA. An introductory lecture, delivered before his class in pharmacy, April 13, 1857. By Edward Parrish, M.D.

THE PICTURE OF PHILADELPHIA. Giving an account of its origin, increase, improvement, etc. With a compendium of the societies, police, institutions, etc. By James Mease. Philadelphia, 1811.

PICTURE OF PHILADELPHIA. Or a brief account of the various institutions and public objects in this metropolis. Being a guide for strangers. With addenda of all the improvements to the present time. E. L. Cary and A. Hart, 1835.

ANNALS OF PHILADELPHIA AND PENNSYLVANIA IN THE OLDEN TIME. In two volumes. By John F. Watson. Philadelphia, 1857.

HISTORY OF PHILADELPHIA. 1609 to 1884. In three volumes. By J. Thomas Scharf and Thompson Westcott. Philadelphia, 1884.

A HISTORY OF MUNICIPAL DEVELOPMENT. Philadelphia, 1681–1887. By Edward P. Allison and Boies Penrose. Baltimore and Philadelphia, 1887.

In the Philadelphia Library are eight volumes of POULSON'S NEWSPAPER CUTTINGS; search of which will reveal some notes relating to the almshouse and hospital.

Rev. C. F. Pearson, who, ripe in years and good works, is still connected with the almshouse, published a volume in 1875, religious in tone, entitled, SPARKS AMONG THE ASHES. Including reminiscences of nineteen years of labor in the

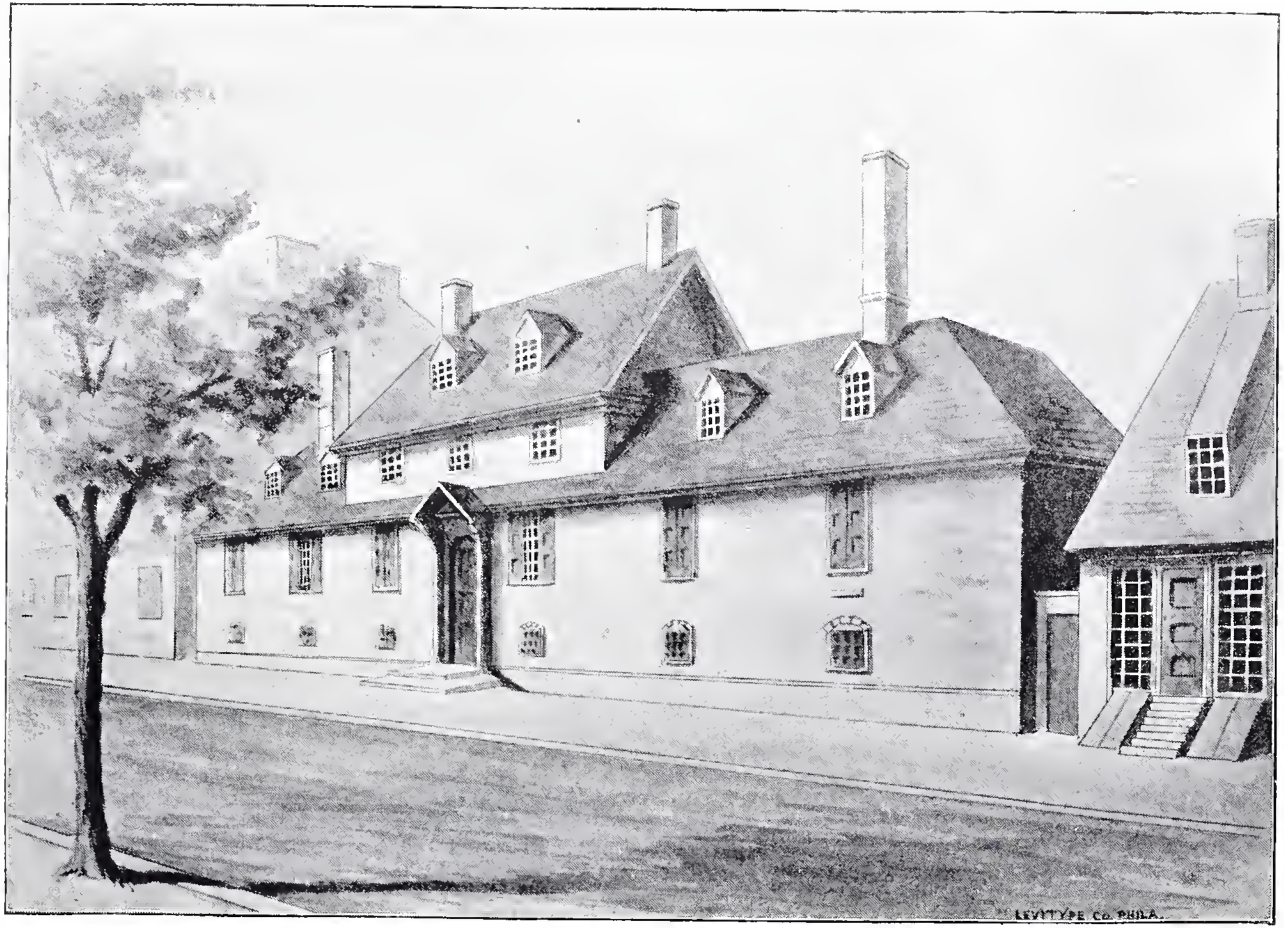
Philadelphia Almshouse. With an introduction by Mrs. Dr. Bell. Some interesting reminiscences of Blockley characters are to be found in this volume.

Among other sources of information are the published Annual Statements or Reports of the board of guardians of the poor, and since 1887 the Annual Reports of the department of charities and correction. Bound volumes, from 1844 to 1854, are to be found in the Philadelphia library; and in the library of the Philadelphia Hospital from 1853 to 1883, the latter presented by a former president of the board of guardians, Mr. Edward F. Hoffman; also several bound volumes are to be found at the office of the bureau of correction, Harmony and Hudson streets.

At various periods, rules for the government of the board of guardians, of the medical board, and of the department of charities and correction have been published, and afford much information. Among these are the following: Rules for the Government of the Board of Guardians, 1828; Laws for the Relief and Employment of the Poor, 1844; Rules for the Guardians of the Poor, 1861; Rules for the Guardians of the Poor, 1868; Rules for the Medical Board, 1870; Rules for the Department of Charities and Correction, 1890.

In the preparation of historical notes and memoranda we have made use of these and also of the written minutes of the board of guardians of the poor, and of the bureau of charities, which, with much other material, have been placed at our disposal through the kindness of Mr. Robert Laughlin. To Mr. Robert C. Floyd, secretary of the bureau of charities, and to Mr. Edwin Palmer, secretary of the bureau of correction, we are under obligations for valuable information and documents. We have also consulted the written minutes of the medical board of the Philadelphia Hospital, which have been placed in our hands by the secretary, Dr. Louis W. Steinbach. At the almshouse are documents, minute books, records, etc., to which we have had access through the courtesy of Mr. George Roney, the superintendent, to whom great credit is due for the manner in which he has collated and arranged these archives of the almshouse, formerly in extreme confusion.

This is an appropriate place to say a word about the literature of the Philadelphia Hospital, or rather about the contributions of the members of its various medical boards to the literature of the profession. These constitute a large portion of the literature of Philadelphia medicine. It would be an interesting task to collect the contributions which owe their existence to work done within the walls of the Philadelphia Hospital. In the notes on the epidemics of the hospital, references are made to a few valuable contributions; as to the monograph on epidemic meningitis, by Dr. Alfred Stillé, to the paper on the same subject by Dr. W. H. H. Githens; and to that on puerperal septicæmia as observed at the hospital, by Dr. W. H. Parish. On pathology the hospital has furnished contributions without number, and some of great value, particularly during the last fifteen years. The medical societies of Philadelphia—the college of physicians, the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FRIENDS' ALMSHOUSE, 1713-1841.

county medical, the pathological, obstetrical, neurological society, etc.—have drawn largely from this hospital for their material, as a search of their transactions will at once make evident. The record of the pathological society of Philadelphia, as indicated in its volumes of transactions, would be meagre indeed, if the material supplied by the Philadelphia Hospital were omitted.

EARLY HOSPITALS AND ALMSHOUSES OF PHILADELPHIA.

From Watson's Annals, Scharf and Westcott's History of Philadelphia, Allison and Penrose's History of Municipal Development, and other sources, we will give a few notes and citations with reference to the hospitals and almshouses of early Philadelphia, and the methods of caring for the poor, both well and sick, to assist by comparison, to a better knowledge of the position, history and work of the great institution with which we are particularly concerned in these pages.

While the Philadelphia Hospital is the oldest in the city, the Pennsylvania Hospital was the first separate institution of this kind, that is, the first distinct from an almshouse or other institution. In 1751, Dr. Thomas Bond projected a plan for a general hospital for Philadelphia, and obtained the support of Franklin; and this was the origin of the Pennsylvania Hospital. A charter was granted in May, 1751, and the first trustees were elected in the July following. Judge Kinsey's house on the south side of Market street (then called High street), above Fifth, was rented, refitted for the reception of patients, and opened in 1752. In 1754, the managers bought the ground upon which the hospital still stands, between Spruce and Pine and Eighth and Ninth streets, and the corner-stone of the first building here was laid May 28, 1755.

The Friends' Almshouse of Philadelphia, which ante-dated by a number of years the first institution of the kind under the municipality, is described by Scharf and Westcott.

"In 1713 the first almshouse was established. It was determined by the city council in July, 1712, that, as the poor of the city were daily increasing, a workhouse should be founded for employing the poor; the overseers to hire the house, and the council to determine the rent and pay of superintendence. The mayor, aldermen Hill and Carter, and councilmen Carpenter, Hudson and Teague, were appointed to take the matter in charge. In the meantime, however, before the councils acted finally, the Friends had founded their own almshouse. It was established in a small house on the south side of Walnut street, between Third and Fourth streets, where, in 1729, the ancient, well-known building, called the Friends' Almshouse, was built, to stand till 1841. The lot belonged to John

Martin and contained a small tenement.. Martin was poor, and gave his property to the society of friends upon condition that they would take care of him for the remainder of his days. A cluster of small houses was built to John Martin's tenement, and this was the Friends' Almshouse. In 1729, a front range of buildings was put up connecting with the previous structures. It was a quaint pile with an arched entrance, and all about the buildings looked antique and primitive. The Friends' Almshouse, at first in general public use, soon became a private retreat for indigent persons of the Quaker faith. Each family was separately lodged, and if any had a trade or calling, he was expected to do what he could at it and so lessen the burthen of his expense to the society."

Watson describes the first almshouse under city control:

"The original poor-house for the city was located down town on a green meadow, extending from Spruce to Pine streets, and from Third to Fourth streets. Its front was to the east and nearest to Third street. Its great gate was on Spruce street, and its entrance on Third street was by a stile. The house was much such a structure as to height and general appearance as that of the Friend's Almshouse in Walnut street; it had a piazza all round. It contained the sick and insane as well as the poor. There were also some parts of the necessary buildings formed near the corner of Union and Fourth streets, on the site now occupied by Dr. Physick, from which cause, I find, in 1758, it was called 'the almshouse down Fourth street,' and 'the almshouse square.' It was completed, as already stated, in 1731 or 1732."

"At and before the year 1740," says Watson, "it was the practice when sick emigrants arrived to place them in empty houses about the city. Sometimes diseases were imparted in the neighborhood, as once occurred, particularly at Willing's alley. On such occasions physicians were provided for them at public expense. The governor was induced, in 1741, to suggest the securing of a pest-house or hospital; and in 1742 a pest-house was erected on Fisher's Island, called afterwards Province Island, because purchased and owned by the province for the use of sick persons arriving from sea."

The same authority has an interesting note with reference to hospitals for soldiers during the Revolution:

"In the time of the war, as has been told under its appropriate head, they made use of several empty private houses for the reception of the sick soldiery by the camp fever. The house of the present Schuylkill bank, at the southeast corner of Sixth and High streets, then deserted by the tory owner, lawyer Galloway, was filled with these feeble men of war. At the same time, the large building in Chestnut street (late judge Tilghman's) was also so used."

The following is the description by Scharf and Westcott of the second city almshouse opened in 1767 on the Society Grounds, between Spruce and Pine, and Tenth and Eleventh streets:

"The buildings were opened in October, 1767. The almshouse was laid out in the form of an L, 180 feet by 40, two stories in height, joined by a turret 30 feet square and four stories high. The house of employment was on the west side of the lot running south from Spruce, fronting Eleventh street, also in the shape of

PHILADELPHIA ALMSHOUSE, 1767-1834.

an L, so that the entire range of buildings inclosed on three sides a quadrangular space. A large central building was erected on Spruce street, which stood between the L's. The first story of the almshouse and house of employment on the interior was a cloister of open arches. The buildings on Tenth and Eleventh streets occupied two stories and a garret. The main central building when finished was three stories in height, with a hip-roof, surmounted by a small cupola."

Evidently the central building was erected some time after the others, as in Watson's Annals, Vol. III, page 332, is a picture of this almshouse without the central building. Dr. Agnew locates the institution of this date wrongly between Eleventh and Twelfth instead of between Tenth and Eleventh streets.

Scharf and Westcott also describe the Blockley buildings first occupied in 1834:

"Upon this lot were erected four distinct buildings disposed at right angles with each other, and enclosing an interior space of seven hundred by five hundred feet. The men's almshouse fronted the southeast. The main building contained a portico ninety feet front, supported by eight columns, in the Tuscan order, built of brick, and roughcast, and was flanked by two wings, each two hundred feet in length. The portico being elevated on a high flight of steps, rising beyond the basement story to those of the principal story, gave to this group of buildings a commanding appearance. The women's almshouse was directly opposite the department for males, on the northwest side of the quadrangle. Between these buildings, on the sides, was the hospital, five hundred feet front, and the house of employment, of the same dimensions, immediately opposite. Court yards and yards of labor, gardens and walks, were allotted to each building for the accommodation of the inmates, the departments being separated by walls. In time, however, the inclosure became filled up with buildings absolutely necessary for the use of the establishment. The group of buildings was considered sufficient to accommodate four thousand persons, and the cost was about $900,000."

Later we will give a description of the present almshouse and hospital buildings and grounds, the main structures being practically the same as when they were erected between 1830 and 1834. We will also describe the position and arrangement of the different departments, offices, quarters, etc.

"EVANGELINE" AND THE PHILADELPHIA ALMSHOUSE.

The old Philadelphia Almshouse and its hospital wards have not escaped the gentle attentions of the poet. The readers of Longfellow will remember the pathetic ending of the story of Evangeline; how in the wards of the old almshouse hospital in the time of one of the terrible plagues, so eloquently referred to by Dr. Agnew, after years of troublous wandering, the two lovers, now grown old in years and suffering, again met for a few brief hours before death parted them forever. Evangeline, who had become a sister of mercy, recognizes her old lover Gabriel in one of the fever stricken patients. As it was in 1755, that the French Acadians of Grand Pré, nineteen hundred peaceful, happy souls were dispossessed of their homes, and began their wanderings, the event idealized by the poet can probably be referred to the epidemic of yellow fever in 1793, and to the almshouse building at Tenth and Spruce streets, first occupied in 1767. This incident has been described as occurring in the old Fourth and Spruce streets almshouse, occupied from 1732 to 1767; but as Gabriel and Evangeline had grown old and gray, the meeting evidently should be located in the institution on the Society Grounds between Tenth and Eleventh streets.

"To that delightful land which is washed by the Delaware's waters,
Guarding in sylvan shades the name of Penn the apostle,
Stands on the banks of its beautiful stream the city he founded.
There all the air is balm, and the peach is the emblem of beauty,
And the streets still re-echo the names of the trees of the forest,
As if they fain would appease the Dryads whose haunts they molested.
There from the troubled sea had Evangeline landed, an exile,
Finding among the children of Penn a home and a country.
There old Réné Leblanc had died; and when he departed,
Saw at his side only one of his hundred descendants.
Something there was at least in the friendly streets of the city;
Something that spake to her heart and made her no longer a stranger;
And her ear was pleased with the Thee and Thou of the Quaker,
For it recalled the past, the old Acadian country,
Where all men are equal, and all were brothers and sisters.

The end of the romance within the walls of Blockley is thus told:

"Then it came to pass that a pestilence fell on the city,
Presaged by wondrous signs, and mostly by flocks of wild pigeons,
Darkening the sun in their flight, with naught in their craws but an acorn;
And as the tides of the sea arise in the month of September,
Flooding from silver streams, till it spreads to a lake in the meadows,
So death flooded life, and o'erflowing its natural margin,
Spread to a brackish lake, the silver stream of existence.
Wealth had no power to bribe, nor beauty to charm, the oppressor;
But all perished alike beneath the scorn of his anger;—
Only, alas! the poor, who had neither friends or attendants,
Crept to die in the almshouse, home of the homeless.

"Suddenly as if arrested by fear or a feeling of wonder,
Still she stood, with her colorless lips apart, while a shudder
Ran through her frame, and forgotten the flowers dropped from her fingers,

And from her eyes and cheeks the bloom of the morning.
Then there escaped from her lips a cry of such terrible anguish,
That the dying heard it, and started up from their pillows.
On the pallet before her was stretched the form of an old man.
Long, and thin, and gray were the locks that shaded his temples;
But as he lay in the morning light, his face for a moment
Seemed to assume once more the forms of its earlier manhood;
So are wont to be changed the faces of those who are dying.
Hot and red on his lips still burned the flush of fever,
As if life, like the Hebrew, with blood had besprinkled its portals
That the Angel of Death might see the sign, and pass over.
Motionless, senseless, dying he lay, and his spirit exhausted
Seemed to be sinking down through infinite depths in the darkness,
Darkness of slumber and death, forever sinking and sinking.
Then through those realms of shade, in multiplied reverberations,
Heard he that cry of pain, and through the hush that succeeded
Whispered a gentle voice, in accents tender and saint-like,
'Gabriel! O my beloved!' and died away in the silence."

* * * * * * * *

The Society Grounds in those days were well in the outskirts of the city, but before the removal to Blockley the march of improvement had reached this location.

"Then in the suburbs it stood, in the midst of meadows and woodland,
Now the city surrounds it; but still with its gateway and wicket
Meek, in the midst of splendor, its humble walls seem to echo
Softly the words of the Lord:—'The poor always have ye with you.'
Thither by day and night came the Sister of Mercy. The dying
Looked up into her face, and thought, indeed, to behold there
Gleams of celestial light encircle her forehead with splendor,
Such as the artist paints o'er the brows of saints and apostles,
Or such as hangs by night o'er a city seen at a distance.
Unto their eyes it seemed the lamps of the city celestial,
Into whose shining gates ere long their spirits would enter.

"Thus, on a Sabbath morn, through the streets, deserted and silent,
Wending her quiet way, she entered the door of the almshouse.
Sweet on the summer air was the odor of flowers in the garden;
She paused on her way to gather the fairest among them,
That the dying once more might rejoice in their fragrance and beauty.
Then as she mounted the stairs to the corridors cooled by the east wind
Distant and soft on her ear fell the chimes from the belfry of Christ Church,
While intermingling with these, across the meadows were wafted
Sounds of songs that were sung by the Swedes in their church at Wicaco.
Soft as descending wings fell the calm of the hour on her spirit;
Something within her said, 'At length thy trials are ended;'
And with light in her looks she entered the chambers of sickness.

* * * * * * * *

Vanished the vision away, but Evangeline knelt by his bedside.
Vainly he strove to whisper her name, for the accents unuttered
Died on his lips, and their motion revealed what his tongue would have spoken.

Vainly he strove to arise; and Evangeline kneeling beside him,
Kissed his dying lips and laid his head on her bosom.
Sweet was the light of her eyes; but it suddenly sunk into darkness,
As when a lamp is blown out by a gust of wind at a casement.

"All was ended now; the hope, the fear, and the sorrow,
All the aching of heart, the restless, unsatisfied longing,
All the dull, deep pain, and constant anguish of patience!
As she pressed once more the lifeless head to her bosom,
Meekly she bowed her own, and murmured, 'Father, I thank thee!'"

METHODS OF CARING FOR THE POOR AND SICK OF PHILADELPHIA FROM EARLY TIMES TO THE PRESENT. FORMS OF GOVERNMENT OF THE ALMSHOUSE AND HOSPITAL.

We will rapidly summarize the history of the different bodies or boards which have managed the city almshouse, the hospital, and other connected departments.

On February 8, 1766, the assembly passed an act for the better employment, relief and support of the poor within the city of Philadelphia, district of Southwark, and the townships of Moyamensing, Passyunk and the Northern Liberties. By this law, every person who contributed ten pounds toward the almshouse became thereby a corporator, with power to elect twelve managers, a treasurer, etc. This body was known as "Contributors to the Relief and Employment of the Poor within the city of Philadelphia." The contributors were authorized to erect a commodious building, and the managers purchased a lot of ground bounded by Spruce and Pine, Tenth and Eleventh streets, for eight hundred pounds, and the buildings located on this ground were opened to the public, as already stated, in October, 1767.

During the revolution the "Contributors" were impoverished and their membership reduced, and a law was passed in 1781 investing the overseers of the poor with all the powers of a corporation under the title of "Guardians of the Poor of the City of Philadelphia." In 1803, the assembly ordered that the guardians should be elected annually, sixteen by the corporation of this city, six by Southwark corporation, eight by the justices of the peace of the township of the Northern Liberties. Outside of these limits the poor were attended by their own overseers. By an act passed March 5, 1828, the number of guardians from Southwark and the Penn townships were reduced to twelve.

This plan for the appointment of the guardians of the poor, or one similar to it, remained down to the time of the consolidation of the county into the city in 1854. After consolidation the guardians were elected, one by the voters of each ward, except in certain boroughs in the outskirts of the city, and excepting also that no election was held in the 21st, 22nd, and 23rd wards. The board of guardians elected their president and other officers; numerous duties and powers were vested in them, and they were required to report annually a statement of their expenses and receipts. Many abuses seem to have existed during the administration of the board thus elected, particularly in its latter days, when it became known derisively as the "board of buzzards." It was abolished by an act of assembly of

April 7, 1859, which directed that the board of guardians should thereafter be appointed, three by the district court, three by the court of common pleas, and three by the common council; one every year for three years; and in case of vacancy the appointing powers were to fill such vacancy.

By an act of June 2, 1871, the election of the guardians was placed entirely with councils. They elected four persons annually to serve three years, the minority party being represented in the board, which was to be a department of the city, subject to the act of 1858, and could not make a contract which would bind the city unless an appropriation for the same had previously been made by the councils. The management of the almshouse and hospital continued under the board of guardians thus elected until the act entitled "an act to provide for the better government of cities of the first-class of this commonwealth," familiarly known as the "Bullitt bill," came into force on the first Monday of April, 1887. Under this act the executive power is vested in the mayor and certain departments, one of which is known as the department of charities and correction, which is under the charge of a president and four directors, to whom are confided the care, management, administration, and supervision of the almshouse, hospital, house of correction, and other similar institutions, the government of which is intrusted to the city, except the municipal hospital or lazaretto, or institutions under any board of directors of city trusts now existing.

During the tenure of the board of guardians much of the work of the almshouse, including the supervision of the hospital and of the insane department, was intrusted to standing committees. According to the rules of the board published in 1861, for example: standing committees of three members were appointed on outwards, children's asylum, hospital, insane department, classification and diet, manufacturing department, supplies, farm and garden, accounts; and a committee of five members on support and bastardy cases. These committees had much to do with the practical work of the hospital and other parts of the institution, and with a few changes and modifications in authority, the same plan of committees continued during the administration of the different boards of guardians. The hospital committee in particular was vested with great power, and was practically the executive committee for the control of the hospital and medical matters in general. Although invested with much authority, at different periods its range of power varied.

The board of charities and correction is sub-divided into two bureaus, appointed by the president, one known as the bureau of charities, the other as the bureau of correction. The president of the board is ex-officio a member of both bureaus. The bureau of charities makes a report furnishing information to the board at its monthly meeting, and the members of the bureau are expected to visit Blockley once a week, while all the members each of the board are expected to visit the almshouse at least once a month.

The first board of directors of the department of charities and correction was composed of James W. White, M.D., president; and Robert Laughlin, Richard A. Cleemann, M.D., Richard C. McMurtrie, and James Stewart, treasurer. Dr. White had been long connected with the management of the maternity hospital and other charities. Mr. Laughlin had been for many years one of the managers of the house of correction. Dr. Cleemann was a member of the board of health. Mr. McMurtrie and Mr. Stewart had been members of the board of guardians, where their services had been of great value to the poor and sick of the city. The president, and the directors who were appointed on the bureau of charities, gave to the work the closest personal attention.

In May, 1889, Dr. White was succeeded as president of the board of directors by Mr. Laughlin, and Mr. Galloway C. Morris was appointed a director to complete the board. Mr. Morris resigned in December, 1889, and Mr. John Roberts, a well known member of the bar, and a former member of the board of managers of the house of correction, was appointed in his place. The board as at present constituted, therefore consists of Robert Laughlin, president; Richard A. Cleemann, M.D., Richard C. McMurtrie, John Roberts, and James Stewart, treasurer. With boards so constituted, the affairs of the almshouse have been conducted with great efficiency, and great advances and improvements have been made. An account of many of these improvements will be given later.

CHIEF EXECUTIVE OFFICER OF THE ALMSHOUSE.

The present superintendent of the almshouse, Mr. George Roney, assumed the duties of his position January 1, 1886, and has served from that time to the present, under the last board of guardians, and the department of charities and correction, energetically carrying forward for these boards many of the improvements to be hereafter detailed.

For many years the chief executive officer of the almshouse was known as the steward. According to the rules of 1861, under the direction of the board, he was to have entire supervision of the institution in all its various departments, except those under the immediate charge of the medical board and resident physician of the insane department. The details of his authority are given in the rules printed in this and other years. In 1876, the office of steward was abolished, and that of superintendent, with some enlargement of powers, was substituted. The superintendent supervises all the departments of the institution, and reports any inefficiency of the employees to the board; he also makes suggestions as to repairs on the buildings, and is invested with much power and many duties, as detailed in the rules published at various periods.

REMOVAL OF THE ALSMSHOUSE TO ITS PRESENT LOCATION.

The name "Blockley," which is so commonly applied to the Philadelphia Almshouse is taken from the township in which it was located. Before 1854, Philadelphia, like other counties of the State, was divided into townships, and that known as Blockley was situated on the west side of the Schuylkill. While familiar to most residents of the city, the name is not always understood by others, and we have been asked about its origin by students and physicians.

As early as February, 1810, an effort was made to remove the almshouse to a farm; and that year a report was made to the assembly, but without apparent result. In February, 1811, the guardians memoralized the legislature for authority to sell the property between Tenth and Eleventh, Spruce and Pine streets, and buy a farm. They also desired that the keeper of the Arch street prison should be obliged to receive all drunken, idle and disorderly persons. The committee reported against the desired sale, and it was not until the passage of an act, March 5, 1828, that authority was given to build accommodations suitable for a hospital, an almshouse, etc., on a site not exceeding two miles from Market and Broad streets. In a volume printed in 1828, containing the rules for the government of the board of guardians, and also the laws relating to the relief and employment of the poor in the city of Philadelphia, etc., the full text of this act is to be found, and from it we will cite one or two of the most important paragraphs.

The act states that immediately after the election of guardians of the poor, on the third Monday in May, the select and common councils of the city of Philadelphia and the commissioners of the neighboring districts, shall elect twelve respectable citizens, within the bounds of their respective jurisdictions, who shall be styled the "Commissioners for erecting buildings for the accommodation of the poor." These commissioners were to form a board and make one of their own number president.

The act goes on to say, "It shall be the duty of the said commissioners, having first obtained the approbation of the board of guardians to purchase a suitable site, not exceeding two miles from Market and Broad streets, the title whereof shall be vested in said corporation, for the erection of buildings suitable for a hospital, almshouse, house of employment and children's asylum, and to cause as soon as practicable, the necessary buildings as aforesaid, to be erected and constructed, upon such plan or plans as a majority of said commissioners may think proper for the purpose contemplated, such plan or plans having first been submitted to, and approved by, the said board of guardians, having due regard to the full and comfortable provision for all such persons as may require medical or surgical aid, and also such as may be unable, through age or other infirmities, to procure subsistence, and for the employment of all those who may be able to work, and also for the health, convenience and instruction of the children; to make all necessary contracts for materials, etc."

* * * * * * * * * *

"In order to carry the objects and provisions of the law into complete effect, it shall and may be lawful, and said guardians of the poor are hereby authorized and invested with full power to negotiate and contract for and upon the faith of the said corporations of the guardians of the poor, any loan or loans, from time to time, according to their discretion, not exceeding two hundred and fifty thousand dollars, upon the best terms, and lowest rate of interest, payable half-yearly; and the said corporation of the guardians of the poor shall receive the amount of said loans, and are hereby authorized and required to issue certificates of the stock, duly attested by the president and secretary of the board of guardians, under the corporate seal, for any sum or sums not less than one hundred dollars each, as may from time to time be necessary, in pursuance of the contracts for such loans, etc."

We have had the opportunity of examining a copy of the original deed or "written indenture," conveying the Blockley property from Henry Beckett, and Mary, his wife, to the board of guardians, and we will quote as much of this as indicates the price paid and exact boundaries of the land bought—with the capitals and entire want of punctuation as in the original.

"THIS INDENTURE

"Made the first day of January in the year of our Lord one thousand eight hundred and twenty-nine between Henry Beckett of the City of Philadelphia Merchant and Mary his wife of the one part and the Guardians for the Relief and Employment of the Poor of the City of Philadelphia the District of Southwark and the Townships of the Northern Liberties and Penn Witnesseth that the said Henry Beckett and Mary his wife for and in consideration of the sum of Fifty-one Thousand Five Hundred and Twenty-eight Dollars Twelve and a Half Cents lawful money to them in hand paid by the said the Guardians for the Relief and Employment of the Poor of the City of Philadelphia the District of Southwark and the Townships of the Northern Liberties and Penn at the time of the execution hereof the receipt whereof is hereby acknowledged have granted bargained sold released and confirmed and by these presents do grant bargain sell release and confirm unto the said the Guardians for the Relief and Employment of the Poor of the City of Philadelphia, the District of Southwark in the Township of the Northern Liberties their successors and assigns All that Certain Tract Plantation and parcel of land situate on the west side of the River Schuylkill in the Township of Blockley and County of Philadelphia in the state of Pennsylvania Being part of a certain larger tract of land known by the name of the Woodlands bounded and described agreeably to a resurvey thereof lately made by Enoch Lewis Esquire as follows Beginning at a Post on the margin of the River Schuylkill at low water mark in the mouth of a small creek and at the corner of land belonging to John Hare Powell and Edward S Burd Esquire thence up the creek by the land of the said Powell and Burd north thirty-six degrees and two-thirds of a degree west nineteen perches and one-sixteenth of a perch to a post north fifty-three degrees west twenty-three perches to a post thence leaving the creek but still along the line of Powell and Burds land north forty-nine degrees and a half west, one hundred and eight perches to a post on the southern side of the Darby Road south sixty-two degrees and a quarter west one hundred and three perches and a quarter of a perch to a corner of Thomas Fleming's land thence by the said Fleming's land south twenty-six degrees east seventy-nine perches and four-tenths to a post in a small stream of water thence south ten degrees west twenty-one perches and five-tenths of a perch to a post thence south one-quarter of a degree east fifty-one perches and seven-tenths of a perch to the low water mark of the River Schuylkill and thence up the said river by the several meanders thereof two hundred and sixty-two perches more or less to the place of beginning Containing one hundred and eighty-seven acres and sixty perches of land Being the same tract of land and premises which Jacob Strembeck Esquire High Sheriff of the City and County of Philadelphia by Deed Roll stated the eighth day of December last past granted and conveyed with the said Henry Beckett, in fee seized and sold by virtue of legal proceedings issued out of the District Court for the City and County of Philadelphia as the property of William Hamilton Esquire deceased at the suit of Margaret Hamilton as in and by the said recited Deed Roll duly acknowledged and entered among the Records of the said Court in Book E page 231 and will more fully appear together with all and similar the buildings improvements marsh cripple landing landing places ways waters, water-courses rights liberties privileges hereditaments and appurtenances whatsoever thereunto belonging or in any wise appertaining and the Reversions Remainders rents issues and profits thereof and all the estate right trite interest property claim and demand whatsoever of him the said Henry Beckett and Mary his wife etc."

Just when the work was begun on the Blockley Almshouse, the time taken to complete the buildings, the order in which they were finished, and exactly when they were first occupied, is not on record in any publications to which we have had access. The statements made generally are that the buildings were occupied about 1833, 1834 or 1835. Dr. Carson in his history of the University of Pennsylvania, page 201, says that the hospital department, the first portion of the pile of buildings, afterwards completed on the west bank of the Schuylkill river, was in sufficient readiness upon the first visitation of cholera in 1832, to receive patients. The correctness of this statement seems to be doubtful. A search of the manuscript minute books of the board of guardians from 1828 to 1835, inclusive, indicates that work probably began late in 1830 or early in 1831, and was carried on steadily until 1835. May 27, 1833, the building commissioners reported that two buildings would be ready for their inmates on October 1, 1833, and that the two others then erecting would be finished during the course of the next season, 1834.

From the minutes of the board of guardians we learn that the final removal commenced on the Monday following July 7, 1834, and continued, under the supervision of three committees of the board, until July 28th, when the "Old Almshouse" was finally vacated and the new one actually taken possession of, as the following records, from the minutes, July 28, 1834, proves:—

"*Resolved*, that the president cause public notice to be given, in the daily papers of the city, of the occupancy of the new almshouse and the removal of the office."

"On motion the board adjourned to proceed over the Schuylkill to meet in the new almshouse."

"The board met agreeably to adjournment, July 28, 1834, being the first regularly organized meeting of the board on the west side of the Schuylkill."

The following is a copy of the card of the first inmate of the "New Almshouse," or at least of the oldest admission card preserved, which is kept framed at the institution:—

"Mary Cannon, Blk.
Age 23. Lewiston, Del., Aug. 22, '33. J. Huley.
Surgical. N. D. B. 1840. J. Huley.
Asst. Hosp. 6–29–66.
Medical 1–15–67. Willard. C.
Discharged 8–21–67. Curtin. C.
Asst. Hosp. 8–31–67. R. H. B.
Medical 3–22–78. Vogler.

Died 1878."

It is possible that this woman may have been transferred from Spruce street when the transfers were made, and a new card made out under the original date of admission in the old almshouse, or she may have been admitted to Blockley before the completion of the building.

January 19, 1835, the commissioners sent a communication to the guardians that they would surrender the new almshouse buildings, completed, March 1, 1835.

TRANSFERS AND SALES OF ALMSHOUSE LANDS.

While the main buildings have remained much the same, great changes have taken place in the distribution and ownership of the original one hundred and eighty-seven acres and sixty perches of land which constituted the old almshouse farm. Under an act of the legislature approved May 1, 1861, much of the property has been sold or transferred. The full text of this important act is as follows:—

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, That the city of Philadelphia is hereby empowered to make private or public sale, and convey in fee simple or reserving ground rents, the present almshouse grounds, or any part thereof, situate in the twenty-seventh ward of the city, containing one hundred and eighty-seven acres, more or less, and the buildings thereon erected, subject to the following conditions:—

1. That the city of Philadelphia shall reserve a part of said ground, not exceeding forty acres, to be laid out and maintained as an open public place forever, for the health and recreation of the people.

2. That the said city shall also reserve at Pine and South streets, on the river Schuylkill, pieces of ground sufficient, in the opinion of the chief engineer and surveyor of said city, for abutments and approaches thereto, for a bridge or bridges, which may be lawfully authorized to be erected at either of said streets.

SEC. 2. That the city of Philadelphia is hereby empowered to purchase land and erect thereon an almshouse or poorhouse (with or without a house of correction and employment, as may be deemed expedient), and in payment thereof to create a loan which shall be exempt from state tax.

SEC. 3. That the proceeds arising from the sale of the grounds and buildings specified in the first section of this act shall be specifically applied to and pledged for the purpose of payment of the loan authorized by the second section of this act; and if ground rents shall be reserved, or mortgages taken in payment, the same, when sold or paid off, shall be applied to and for the same purpose.

Approved May 1, 1861.

Under the conditions of this act which required that Philadelphia should reserve a portion of the almshouse grounds as an open public place forever, an ordinance was passed by councils in July, 1883, of which the following is the first section.

The select and common councils of the city of Philadelphia do ordain, that all the almshouse property in West Philadelphia, bounded by South street, Spruce street, Thirty-fourth street, Vintage avenue, on to the southern boundary of the city property, and thereto to the Schuylkill river, be, and is, hereby set apart for the purpose of being improved, for the health and public welfare of the citizens of Philadelphia.

In 1870, a tract of ten and a half acres was sold by the city to the University of Pennsylvania for $8,000 per acre. In 1872, six acres were donated for $500 for the hospital of the university, on condition that fifty free beds should be reserved for the sick and wounded of the city.

In 1882, the city, under an agreement with the trustees of the university, deeded to that institution fourteen acres more of the almshouse land, in consideration for which the city was to be paid ten thousand dollars and was to be entitled to fifty free scholarships in the university forever. These free scholarships have since been distributed among the pupils of the high and other public schools of Philadelphia, those being selected who have passed best in competitive examinations. In 1888, the city gave to the university three-fourths of an acre opposite medical hall, on Thirty-sixth street, on condition that a free public library of reference be erected on the university grounds. In 1889, the university purchased of the city another large tract of almshouse ground, chiefly situated between Thirty-fourth street, the Philadelphia and West Chester railroad, Locust and South streets, paying for this property $149,000. Owing to these purchases by the University of Pennsylvania and the erection of numerous buildings by this institution; also because of the construction of railroads, the cutting through of streets, the tearing down of some buildings and the erection of others on the almshouse property, the topography and appearance of the grounds have greatly altered.

The Pennsylvania railroad claims a lot of ground formerly belonging to the almshouse property, which is included within the curved tracks of the Philadelphia and West Chester railroad, the Delaware extension of the Pennsylvania railroad and the curve upon which is built the southern track connecting the two railroads. This ground was put up at public sale under an ordinance of January 11, 1882, and one of April 4, 1882. The transfer was authorized to the company, on condition that a bridge should be built over Thirtieth street whenever it was required for public use. The company refused to accept the conditions for the sale, and claimed to have taken the ground by eminent domain, but no conveyance of the property above mentioned from the city to the Pennsylvania railroad company can be found in the office of recorder of deeds. In January, 1890, a resolution was passed by the select and common councils of the city to inform the proper officials of the company that no settlement had been made for the land taken from the almshouse park, and that if reasonable proposals were not made, the city solicitor was authorized to apply to the courts for a jury to assess the value of the property and damages to be paid the city.

SOME STATISTICAL AND HISTORICAL FACTS.

In the Annual Statement of the guardians of the poor for 1867, and for a number of years following, are given under the head of "addenda," some valuable statistics and historical facts in small compass, which we will quote, and will then follow with a description of the grounds and the buildings as they are at present.

1853. Amount of damages received for crossing the almshouse grounds by the West Chester Railroad Company, $5,951.00.

1857. Gas introduced. Cost of pipes, meters, fixtures, etc., $5,992.35.

1859. Bakehouse erected; cost $1,983.12.

1859. (July.) Date of the present organization of the board, the guardians of the poor being appointed by the courts and councils.

1860. Workshop erected; cost $4,465.43.

1861. Clinic room, rear of drug store, erected; cost $2,765.05. The old clinic room in insane department floored over, and divided into doctor's office, lecture room, etc.

1862. Sale of old copper roofing, yielding $35,070.78; of this amount there has been expended for re-roofing $12,496.28, leaving a balance for the erection of a new children's asylum of $22,574.50.

1863–67. Heating by steam, and also ventilation, introduced generally.

1865. Amount of damages paid by Junction Railroad Company (connecting with New York and Washington) for crossing the almshouse grounds, $10,000 00.

1867. Soaphouse erected.

The number of shade and fruit trees on the almshouse grounds is 771. See statement of accounts for the year 1861.

The quantity of land purchased for the almshouse is 187 acres, 1 rood and 20 perches. The almshouse and yard within occupies 10 acres of this, the remainder in farm and garden.

The farm cost $51,761.81; the buildings cost $859,743.84. Total, $911,505.65.

Present valuation (see report made by the guardians of the poor to the commissioners of the sinking fund for the year 1867).

Ground value at $1,700,000.00; buildings valued at $500,000.00. Total, $2,200,000.00, being an excess of cost of $1,288,494.35.

DESCRIPTION OF THE PRESENT ALMSHOUSE GROUNDS.

For a short distance from Thirty-fourth street the present almshouse enclosure is bounded on the north by Pine street; and a street called Guardian avenue, runs from Pine street to the eastern border of Woodlands cemetery, in a line parallel with the northwestern of the four main structures, therefore bounding the enclosure on the northwest. A street, called Cleveland avenue, is marked on the city plan between Woodlands and the almshouse. From Pine street, for about a block, Thirty-fourth street bounds the enclosure on the east. Vintage avenue runs from Thirty-fourth street to Woodlands cemetery (or Cleveland avenue), in a line parallel with the front or southeastern building, forming the southeastern boundary of the almshouse enclosure.

Beyond Vintage avenue spreads out a large field—riverward as far as the railroads, to the east as far as almshouse lane, and to the west to Woodlands. On the city plan, but not yet cut through, is Meadland avenue, situated between the railroads and Vintage avenue, and parallel with the latter. Beyond the fields are the tracks of the old West Chester and Philadelphia, the Junction railroad, and special tracks connected with the Pennsylvania railroad system. Between these numerous railroad tracks and the river, is a large area, formerly like the ground now occupied by the tracks—a swamp or marsh, but now nearly filled to the river front with the ashes and dirt, which under a city ordinance, have been hauled and dumped here during several years.

A lane, lined on both sides by old trees, and known as "Almshouse Lane," leads from Vintage avenue, near Thirty-fourth street, to the river. It is the road to the old almshouse wharf, to which barges and vessels came with coal and other stores, and from which sometimes tugs, small boats and other craft started. When inmates of the house of correction are brought to work on the almshouse grounds, as they have been frequently during recent years, they are usually transported on a tug by the harbor police, and are landed at this wharf. To the east or left of this lane, not far from Thirty-fourth street, is an old frame building, now occupied by the clerk of the almshouse; and to its right or west, facing and very close to the railroad tracks, is an old stone building two stories and a half high, also usually occupied by some one connected with the institution. This house has stood for many years. It formerly marked nearly the line where the marsh or swamp land ended, which was first occupied by the railroad tracks. These tracks were built on trestles and the space afterwards filled in with dirt.

Between Thirty-fourth street and the river, and east of almshouse lane, are the old farm house and barn, with connected stables, sheds and buildings. This farm house, well built and roomy, stands on a knoll, and is now used as the children's asylum. The barn is a large substantial structure of stone, built like the great buildings of the quadrangle to withstand the ages. On the southeastern corner of Thirty-fourth and Spruce streets is a frame house of comparatively recent date, occupied by one of the officials of the almshouse. Between Almshouse lane and South street, beyond the barn and old frame house, is a large lot which is occupied by the water department, and is used for the storage of pipes and other materials. A large city free bath house is situated along the approach to the South street bridge. Between the approach to South street and Almshouse lane, and between the water department enclosure and the railroad, is an irregular area, at present used as a general thoroughfare.

The position of the South street bridge and its western approaches to the almshouse buildings are somewhat misleading. The bridge has not been constructed on a line with South street as laid out on the city plan east of the river, but runs in a direction from northwest to southeast. Lombard and South streets, if cut through on the west side of the river in a line with the other streets, would run through the almshouse property. On the west side of the river, however, the approach to the South street bridge is on the same line as the bridge itself until it merges into Spruce street near Thirty-fourth.

North of the almshouse enclosure and grounds as just described, much of the old almshouse farm, as already shown, is now in possession of the University of Pennsylvania. On a portion of a triangular lot bounded by Thirty-sixth street and by Spruce street and Woodland avenue where they cross at a sharp angle, has been erected one of the city police stations. On another part of this lot, facing Spruce street, still stands, in good condition, an old farmhouse with dormer roof, which was for a long time the residence of the physician-in-chief of the insane department. In 1888, as already stated, three-fourths of an acre from this lot was given to the university.

For many years the cemetery connected with the present almshouse was situated in a part of the grounds which would, as the streets are laid out now, be between Locust and Spruce streets, and west of Thirty-second street. The present cemetery is situated west of the southeastern frontage of the buildings, between them and the Schuylkill. It covers about an acre; is surrounded on three sides by a close board fence, and on one, the east, by a pale-fence, in the centre of which is a gateway. The fences, and the cemetery in general, have a somewhat dilapidated appearance, but as I am informed by the superintendent, steps are about to be taken to improve this burying ground, in line with the general progress of improvement in the entire institution. This little plot has its full measure of weirdness and quaintness; two old trees, gaunt and gnarled, stand sentinel over the humble mounds and waiting trenches. In all the enclosure, but one grave is marked—a solitary wooden tablet, with a brief inscription. Built against the board fence on the north side is a home-made hut about twelve feet long and half as many feet in width, the abode during the day-time of a one-legged Argus, who guards these sacred precincts, and regales visitors with harrowing stories of the place; but when night arrives betakes himself to his quarters in the buildings that his sleep may not be disturbed by visions of the scenes of which he is the custodian and narrator.

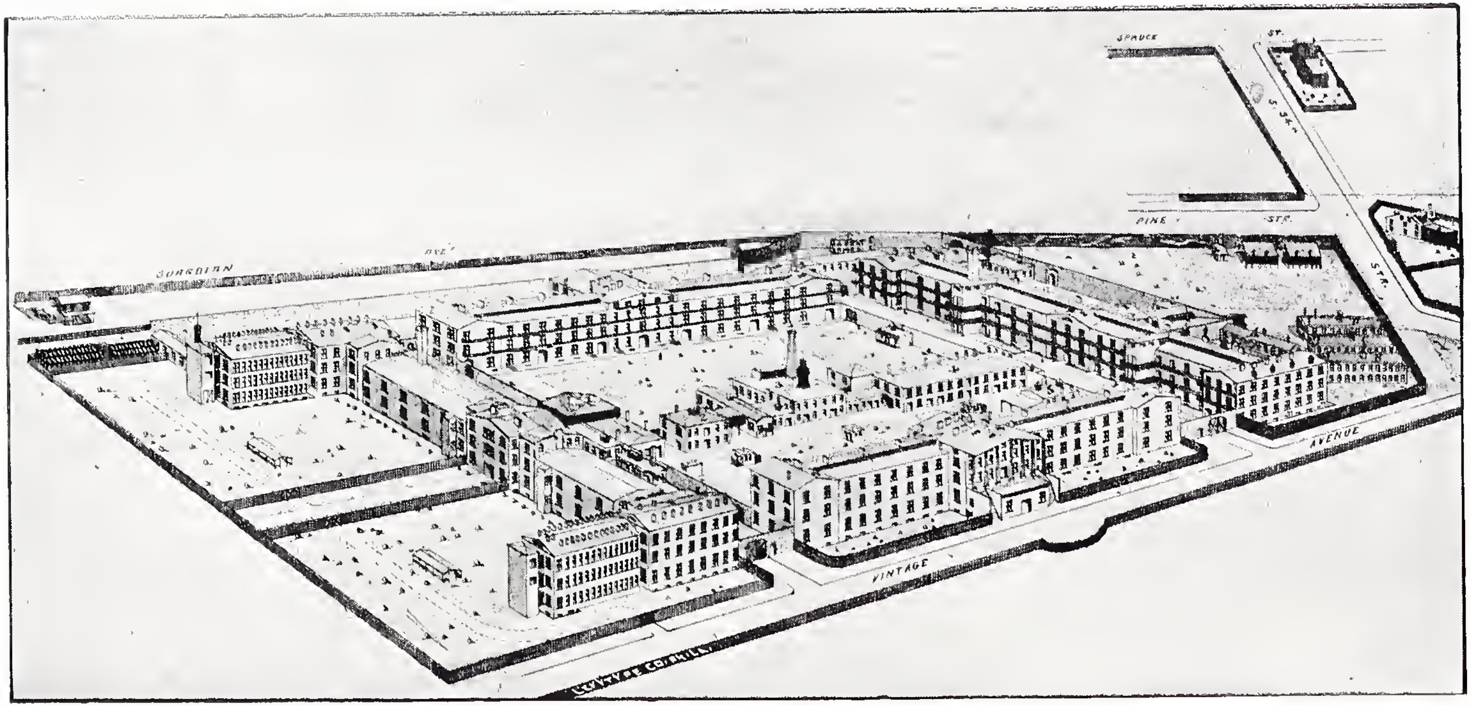
DESCRIPTION OF THE PRESENT ALMSHOUSE BUILDINGS.

A general description of the present arrangement of the buildings of the almshouse, and also of the uses to which these buildings or certain portions of them are put, may be of value hereafter to those in search of information with reference to the history of this institution. The description is from personal observations and from data furnished by the superintendent of the almshouse, and the chief resident physician of the hospital.

The four main buildings of the almshouse surround a hollow square, leaving, however, a considerable open space between the ends of the buildings. They are built of stone; three of them are three stories high with dormer roofs. Formerly all were full three stories in height, but after the fire in 1885, which partially destroyed the insane department, the southwestern structure was only rebuilt to two stories, as will be hereafter described.

In describing the position of these buildings with reference to the Schuylkill river, and the city streets which have now been cut through and completed around the almshouse, mistakes might be made by a too hasty observer. Commonly the four great buildings which bound the quadrangle are described as north, south, east and west, but they are not located with the direct points of the compass. Instead of a northern, southern, eastern and western main building, we have in general terms a northwestern, a southeastern, a northeastern and a southwestern building, the southeastern being the main or front building, with the elevated portico in the centre. The river which runs nearly north and south just above the almshouse property, opposite and below it, or above and about the position of Gray's Ferry bridge, takes a sweep to the west or southwest.

The front or main building facing southeast, is 521.6 feet long by 60 feet wide. Its centre is chiefly used as an administration building, and as residences for the superintendent and others. The lower or first floor extends beneath the immense portico of eight columns, which is on a level with the second floor, and is approached by steep, stone stairways on the east and west. On this lower floor are the offices of the house agent, the dining-room for the officers and inmates, and a clothes-room for the men. The second floor of the centre is occupied by the offices of the president and directors of the board of charities and correction, and of the



BIRD'S EYE VIEW OF PHILADELPHIA ALMSHOUSE, 1890.

superintendent; the third floor by the private apartments of the superintendent, and the dining-room of the resident physicians. East of the centre, the first, second, and third floors are occupied by male pauper inmates or "outwarders," as they are sometimes called, many of them in this portion being able to work about the buildings and grounds in the different departments. West of the centre, the first, second and third floors are also occupied by male paupers or outwarders, but those congregated here are, in the main, the oldest and most infirm. The attic of this building is used as a store-room, and also as sleeping apartments for the officers and for the superintendent's servants.

The northeastern building bounding the quadrangle includes most of the departments of the Philadelphia Hospital proper. It is three stories high, with dormer roof, and is 540 feet long and 63 feet wide. The centre is occupied by female eye, skin and surgical wards, and by the men's surgical wards. The Protestant Episcopal chapel is also located there. In the yard east of the centre, and connected by a covered corridor with the main building, is the amphitheatre or clinical lecture room, 54 by 66 feet in extent, and having a seating capacity for about four hundred; it was built in 1861. The first floor at the north end of this northeastern building is occupied by the library, the offices of the chief resident physician, and the dining-room for nurses. Built eastward from this end is a one-story brick building erected by the Mary Shields' legacy fund. It is 76 feet long by 20 feet wide, and is used as a general kitchen for the hospital, and also as an apartment for special diet for patients. The first floor at the southern end of the northeastern building is occupied by the offices, recitation rooms and parlor connected with the training school for nurses, and also by the drug department. In the second story north are the female medical wards; in the centre are the men's venereal and skin wards; in the south the nurses' dormitories. The third floor, centre and north, contains the men's medical wards; south, the infirmary and dormitories for the nurses. The attic of this entire building is occupied as a sleeping apartment for attendants, and for convalescent patients of the men's medical and surgical wards.

The northwestern main building is three stories high, with dormer roof, and is 521.6 feet long and 60 feet wide. The first floor in the centre is occupied by the Methodist Episcopal chapel, the women's outward dining-room and a clothes-room; on the second floor centre, are the private apartments of the chief-resident physician and the office and sleeping-room of the matron; on the third floor are the sleeping apartments of the resident physicians. The first floor east is occupied by the women's nervous wards; the second by the nursery, and the third by the ward for diseases of women. On the first floor west are the women's outwards and the Roman Catholic chapel; on the second and third floors also the women's outwards; and on the third, in addition to the outwarders, the women-help for different departments are quartered. In the eastern attic of this northern building are the women's venereal wards; while in the centre and west attics are the quarters for the working women of different departments.

The southwestern structure bounding the quadrangle is the main building of the insane department, which was formerly three stories in height throughout like the other three buildings, but after the fire in 1885, only sixty-six feet of the centre was rebuilt to three stories, the extensions on each side from the centre being only carried up to two stories. The full length of the building is 298 feet; its width 63 feet. In the centre on the first floor are the offices for the physicians and the reception rooms for the patients and their friends; on the second floor the sleeping apartments of the doctors and the sewing room; on the third floor an amusement hall. The first and second floors to the north of the centre are occupied by female insane patients; the first and second floors on the south side by male patients. Two wings built in 1870, from each end of this western main building, each extend 237 feet west, and have a width of 48 feet. They are built of stone and are three stories high. The north wing is occupied by female insane patients, and the south by male patients.

These buildings have the great advantages of room, strength and solidity. The walls of the four immense buildings which bound the quadrangle are of great thickness, and have been erected upon stone and brick archways with sturdy foundations. Whatever through mischance, abuse, or alteration may have occurred to the inside of these robust structures, the walls have stood unshaken, and they promise to stand through many generations.

In the centre of the hollow square formed by the four main buildings are located the boiler and engine rooms for generating steam for the entire establishment; an electric light plant with dynamo; a store house from which all the supplies are distributed; the manufacturing department, the buildings for which contain a steam-fitting, tin, paint, carpenter, wheelwright, upholsterer, plumber, blacksmith, tailor and shoe shops; shops for hand loom weaving; and the bakery, tallow rendering, soap boiling and blanket scouring departments. The brick building used as a kitchen for the out wards, 93 feet long and 20 feet wide, built from the proceeds of the Mary Shields' legacy, is also located here. All the buildings of the entire institution are heated by steam.

Two large fire escapes built of brick are attached to the hospital or northeastern building, and are connected with the different wards by an iron balcony running the entire length of the same on each floor. A fire escape of the same kind is attached to each wing of the insane building; these are connected by an open bridge from each floor. The northwestern and southeastern main buildidgs have also iron fire escapes, running from the ground to the top of the buildings. The grounds are beautifully laid out, well sodded, and with a large number of shade trees, shrubbery and plants.

East of the hospital buildings, to the left of the roadway which leads to the clinic hall are four brick pavilions. Three are two-story brick structures connected by a covered porch, and occupied, with the exception of one ward, which is the men's eye ward, by the men's nervous wards. Each of these three pavilions is 114 feet long by 28 feet wide. Between these and the main building is a one-story brick pavilion parallel with the northeastern main building; this pavilion is used as a dining-room for many of the patients in the nervous wards. Opposite to the nervous wards to the north, across the roadway which leads from the clinic gate to the clinic hall, are two one-story brick structures with porticos in front. They are each 60 feet long and 33 feet wide, and are used as maternity wards.

North of the northern end of the northeastern and the eastern end of the northwestern main building, is the general laundry of the institution, a brick building, one-story high, 170 feet long and 24 feet wide.

A short distance north of this laundry and, therefore, northwest of the northern extremity of the northeastern building, are the two pathological buildings, the laboratory and the museum. The most eastern of them is a two-story brick structure 40 feet long and 20 feet wide, the first floor of which is used as a dead-house and post-mortem room, and the second by pathological and bacteriological laboratories. Adjoining this building to the west is the pathological museum, just completed, 40 feet long, 40 feet wide, and 30 feet high. Northwest of these pathological buildings, but separated from them by a high fence, is a small "Pest House," or hospital for contagious diseases.

ADDITIONS AND IMPROVEMENTS.

When the new board of guardians came into power in 1859, Mr. Mahlon H. Dickinson was placed on the committee on manufactures. At this time the manufacturing department was in bad condition, the goods made scarcely equalling the cost of material. The building used was a one-story wooden structure not fit to be used by old and infirm paupers.

Mr. Dickinson succeeded in getting an appropriation of $5,000 from city councils for a new building which was erected in 1860. The stone was taken from an abandoned quarry on the grounds, and the work done by inmates of the institution. The gravel for the plaster was also obtained on the premises. In this way a building, worth $8,000 or $10,000, was erected at a cost of about $5,000. After it was completed, the house was searched for mechanics, and carpenters, painters, tinsmiths, blacksmiths, tailors, weavers, etc., were found and put to work, these men sometimes being given a little extra tobacco, or some special privilege, as an inducement to do well. Old hand-looms were repaired by inmates, and after a time blankets were made for the house. The value of the goods thus manufactured in the institution, after a few years, amounted to many thousand dollars. This manufacturing department has continued to be an important department of the almshouse, as a study of the reports of the institution will show.

Councils, in 1870, appropriated $70,000, and two new wings, with modern improvements, were added to the insane department, furnishing room for 180 additional patients. It was largely through the efforts of Mr. George L. Harrison that this work was accomplished – only one of a multitude of good deeds done by him for the insane and defective classes. For years, while a member of the board of public charities, Mr. Harrison devoted much time and attention to the insane department of the Philadelphia Hospital, to which Dr. Richardson in his annual reports gratefully refers.

In 1874, a committee of councils reported in favor of the erection of a series of temporary wooden pavilions for the medical, surgical, and insane departments. These were built in 1875—those for the insane in the space west of the department; the others, in the yard east of the northeast building of the quadrangle. The board of public charities called attention to the danger of fire from these buildings in 1879, and in 1880 the pavilions for the insane were removed. The other pavilions were used for various medical and surgical purposes, until the wards for nervous diseases were started in them in 1877. They continued to be used as nervous wards until they were demolished one after the other; the first in 1884, the last not until 1888. The maternity building and the new brick pavilions now occupy most of the space where they formerly stood. Long before they were destroyed they became ricketty, vermin infected, unsightly structures.

We will rapidly glance at the most important of the many recent improvements in the almshouse and hospital. Such improvements are by no means confined to the erection of separate buildings or the enlargement of others. Some of the most valuable are with reference to lighting, ventilation, drainage, machinery, paving, painting, plastering, and similar important work.

Of all the inventions of the enemies of the sick and poor, one of the most atrocious was the series of blind rooms or cul de sacs, known about Blockley as the "cubbies." These were a series of small rooms constructed of solid masonry against the blind partition walls of the larger rooms or wards. They were in two rows, one a gallery above the other. The only opening in them was a low arched door in the masonry. In each of these was placed a bed; and more than once we have heard Dr. Ludlow, familiar with the details of Blockley history, tell how they were regarded by their designer as an achievement for the poor of which Philadelphia might be justly proud, as they gave to each shipwrecked pauper his own bedroom. Strangely enough, many a poor Blockley outcast cherished his unlighted, unventilated cave with deep affection, and resented with execrations its destruction.

Active attention was directed to the removal of the cells and cubbiés, already described, as early as January 31, 1870, at which time a letter was received from the outward committee showing the necessity of alterations for additional wards, enlargement of the female bathing tank, and above all, the removal of the cells and cubbies. Not much, however, was done in this direction until four or five years ago. In the report of the superintendent for 1886, he refers to the removal of some of the cubbies from the old men's outward; in 1887, this work was continued with activity, as also in 1888, when the men's and women's outwards were largely relieved of these pest-holes.

In 1884, the southern end of the southeastern main building, formerly used as a nursery and children's asylum, was re-plastered and thoroughly fitted up as a home for the nurses of the hospital, and the old school room in the same building as a drug store. The former drug store was on the south side of the corridor, which led from the clinic hall through the centre of the south-eastern building.

After the removal of the women's nervous wards to the lower floor of the women's outwards, the maternity wards were erected. The first reference to them is to be found in the minutes of the board of guardians, May 2, 1884, when Dr. Thomas Biddle moved that a maternity ward should be erected on the space now occupied by the female nervous pavilion. On June 23, 1884, the house committee reported this ward well under way. It was completed during the year, and opened January 1, 1885.

In 1886, a new brick pavilion for the men's nervous wards was erected in the yard east of the southeastern main buildings, parallel with it, and between it and the wooden pavilions. In 1887, another one-story brick building was erected in the western side of the same yard, but at an angle with the first pavilion and the main building. This was the first of a series of pavilions which had been provided for by councils and the department of charities and correction. During the year 1888, the last of the rickety and unwholesome wooden pavilions were removed and two additional two-story brick buildings substituted for them. In 1889, an additional story was put on the pavilion erected in 1887.

In 1886, the accumulated income of the Mary Shields' legacy was applied to the erection of a new kitchen-building, with complete apparatus for cooking of the best character. This was nearly finished at the time of the disastrous fire on the night of February 12, 1885, after which the work was rapidly pushed and completed, furnishing much needed accommodation, the old kitchen having been destroyed. A kitchen was also built and furnished for the general hospital in 1886, and during the past year, part of the cost of a third kitchen has been paid.

In 1887, the nurses' apartments and the quarters of the resident physicians were thoroughly renovated. The general laundry was enlarged, new machinery introduced, a drying-room for the laundry of the insane department was built, the outer walls of the buildings were rough-coated, the outside woodwork was repainted, balconies to the fire-escapes were completed, and pipes were laid for increased water supply to the institution.

In 1888, additional fire escapes were erected Much paving in the hospital grounds was completed, the asphalt pavements which are now found in the streets of the quadrangle being first introduced. An important improvement during this year was the building of a trunk 450 feet long, connected with the sewer of the insane department, to carry the drainage beyond low water mark in the Schuylkill. This was built and the sewer cleansed of its contents. This sewer had not been cleansed for a period of fifty years, and from it were taken one hundred and forty-two cart loads of material.

During the discussion arising out of the great fire which partially destroyed the insane department in February, 1885, it was made apparent that one of Philadelphia's greatest needs was a State hospital for the insane, to be devoted entirely to the reception of patients belonging to this county, the city maintaining a small department at Blockley in connection with the general hospital for the reception of acute patients, or the temporary detention of doubtful cases. It was, however, finally decided to rebuild the burned structures on the old site. This was done the first half of 1887, but various alterations and changes in the old plan were made. The main building which formed the southwestern side of the original quadrangle was the one most completely destroyed by the fire. This was rebuilt and the northern wing repaved. In rebuilding it the centre was carried to three stories, but the extensions on each side from the centre were built to only two. Open ways were also left between this building and the wings. Fire-escapes were added to the structures in 1886.

In 1889, the removal of the cobble stone pavements of the quadrangle, and the substitution for them of the cement pavements, was continued. New and greatly improved water closets were erected in the outwards, the nursery, the obstetrical ward, and in the men's medical and venereal wards—a work of vital importance to the health of the wards. During this year city councils appropriated money for the electric lighting of not only the buildings but the surrounding grounds ; the appropriation included an item for an electrical plant at the institution. This work was placed under the supervision of the electrical bureau, and during 1890 was begun, so that now a portion of the institution and grounds is illuminated by electricity. The wooden door frames of the insane departments were also removed during this year, and replaced by others made of iron.

Connected with the hospital had long been a ward known as the drunkard's ward, or as usually designated, "the drunk ward." This was in the first instance set aside for the reception of those suffering from mania-a-potu, or for such cases as were indicated by the attending physician or by the medical board. It was also a custom to place in this ward patients who were temporarily disturbing or dangerous, or whose sanity was doubtful, sometimes detaining them here until an examination was made with a view of transferring them to the insane department. In 1889, this ward was changed into one which is now known as the detention ward, and since then doubtful cases in the general hospital, and similar cases received from the outside through the police department, have been detained in this ward until thorough examination into their mental condition has been made.

In 1890, city councils made an appropriation from the almshouse property fund to the department of charities and correction for the erection of additional buildings on the grounds of the almshouse. These buildings, a portion of which are now under way, are to be independent wings from the buildings now existing on these grounds. A competent architect was authorized to prepare plans for them, and these plans were drawn and eventually approved by the department of charities and correction and by the mayor.

The department had a survey made of a portion of the almshouse grounds, and found two available areas for building purposes, one on the west between the wings of the insane department and the west end of the property, a vacant space 635 feet in length, 362 feet wide in the centre, and 202 feet wide at each end ; on this space it was recommended to extend the buildings of the much overcrowded insane wards. The real capacity of these wards is 600 ; the population when the recommendation was made, 883 ; and it was expected soon after to have returned from Danville 74 insane patients, sent there after the fire, making an excess of 357 beyond the real capacity.

The department also reported that on the north end of the property was a plot irregular in shape, 118 feet wide and 927 feet long, its greatest length being 1021 feet, on which it was suggested to erect ten two story pavilions, costing about $5,000 each, which would be capable of accommodating 100 patients each, and would be better suited for hospital purposes than the present buildings. These additions were earnestly recommended, and it was believed if this was done the complaint of overcrowding, lack of accommodation, and their attendant evils would be removed, and the department would possess the required space and facilities to take care of its population for many future years.

Much work for the improvement of the almshouse and its hospital department is expected to be done during the year 1891. The additional wings for both male and female insane patients will probably be completed. Directly west of the centre of the main building is to be built a refectory, or consolidated dining-room, 208 feet long and 50 feet wide, of a general height of one story, and 45 feet high to the top of the dome. This building is to be divided into two apartments, for male and female patients respectively, and will have a seating capacity for one thousand. It is to communicate with the wards by an underground passage lighted with electricity. Attached will be a two-story brick building, the basement to be for the kitchen; the first floor to be the sewing-room; and the second floor for the sleeping apartments for male and female attendants. It is also proposed during the year 1891 to construct from the Mary Shields' legacy, a steam elevator in the centre of the hospital building, capable of holding a cot to enable patients to be better transferred from floor to floor. An additional electric light plant is also to be established, with a dynamo to light incandescent lamps in all the hallways of the institution, the superintendent's office and the private apartments.

At various times, and particularly during the last five years, efforts have been made to remove the pauper element of the almshouse to some other place than its present location. On January 22, 1883, for instance, a request was sent by the medical staff to the board of guardians asking for this removal; also on November 24, 1884, a communication was made to the board concerning the desirability of removing the almshouse to the grounds of the house of correction. At a meeting of the board July 12, 1884, a committee of three was appointed to confer with councils as to the removal of the pauper element and the erection of a new almshouse.

Shortly after the great fire which resulted in the destruction of a large portion of the insane department, these efforts were renewed, and a committee was appointed by the medical board to circulate a petition for this removal, which was signed by a large number of physicians. In the report of the board of charities and correction for 1887, Dr. J. W. White again urged this removal and the use of the entire space at Blockley for the sick. So far, however, this step has not been taken.

The main reasons advanced for the separation of the almshouse and hospital have been the relief thereby of the great overcrowding, the removal from the sick poor of the stigma which attaches to the name almshouse, and the increased opportunities which would be afforded to improve and perfect both the hospital and the almshouse service.

The mayor, and the present board of directors, have not favored this separation for reasons given in the annual message of the mayor for 1889. The chief of these reasons are, that it will be necessary to build an additional hospital in connection with the new buildings to accommodate the cases of sickness constantly occurring in the institution; that the removal of the almshouse to Holmesburg would greatly add to the cost of conducting two institutions separated by nearly ten miles; that for reasons of convenience and expense, the almshouse should be near to the city; that nearly all the inmates of the almshouse are proper subjects for hospital care; that the separation would cause not only a large expenditure of money for the erection of a new building, but would make necessary large additional fixed expenditures for management, with inconvenience and injury to the patients required to be moved from one to the other.

SANDALWOOD OIL AS A REMEDY FOR COUGH.

By ROLAND G. CURTIN, M.D.

While "the world is all agog" over the newly discovered "germ destroyers," it may not be amiss to offer to the medical profession a palliative and in some cases a curative agent, the use of which may save our patients from much suffering.

In some cases a persistent cough disturbs the rest, and perhaps causes vomiting, which may not only rob the patient of his nourishment and medicine, but also even hasten his death.

A mere accident led me to find out that santal oil was a successful alleviant for some obstinate coughs. The discovery was made as follows: Early in the year 1890, I had under my charge a case of chronic bronchitis, with a dry, hard cough, which had been persistent and harassing for years. The patient had been treated by many physicians without finding relief. I tried among others the following remedies: Deodorized tincture of opium, morphia, hyoscyamus, lactucarium, Hoffman's anodyne, inhalation of the spray of Dobell's solution, and a saturated solution of hyoscyamus and cyanide of potassium, inhalations of chloroform and carbolic acid, etc., but with little effect.

The patient came to me suffering greatly from specific urethritis. I said "we will omit remedies for cough and treat only the local disorder." I ordered santal oil, ten drops on a lump of sugar after meals. He came back in a week and said, "Those drops have relieved my cough more than any remedy that I have ever taken." As a test, I gave him a copaiba mixture. He came back and said that the cough had returned as soon as the sandalwood oil was stopped. I again gave him the oil, and the result was the same as before—the cough was almost stopped. The case interested me so much that I made a number of observations on cases with obstinate coughs. I will give the results and then give my conclusions.

How many characters I blackened by the use of this drug I shall never know. In writing the prescriptions, along with the directions, I always added "as required by cough." It is said that a certain clerk regarded this as a gauze-like attempt to protect the guilty, and showed the prescription to his fellow-clerk with unilateral contraction of the orbicular palpebral muscle. A knowing young man noticed the odor of his father's breath, and said to me, "What is the matter with the old man?"

In the cough of phthisis I have the following notes: I asked Dr. C. J. Alexander, my resident physician in the Philadelphia Hospital, to give the oil to some of the phthisis patients having disturbing coughs, and she made the following report:—

Four phthisical patients in your wards were given sandalwood oil. In every case the dose was m.X, and dropped on sugar, or floated on water, given at bedtime, with the following results:—

A. (Men's medical ward.) Symptoms improved; rest better, but patient soon complained of nausea and disagreeable taste constantly in the mouth. Only six doses were given.

B. (Men's medical ward.) This patient had a most distressing dry cough which could always be relieved if two doses of the oil were given, allowing an interval of one or two hours between doses.

C. (Men's medical ward.) Dyspnœa, with cough and viscid or mucous expectoration, so great that he could not lie down at night. Always relieved by this drug. Whenever one of his "bad spells" came on he always asked for the "medicine on sugar."

D. (Women's medical ward.) Symptoms much the same as above. Always relieved by the oil. Complained of the bad taste that remained in her mouth from one dose to the other.

The following are notes on cases of phthisis occurring in private practice:—

N. C., had a very harassing cough associated with incipient phthisis. She did not receive much relief from 5 drops of the oil, but on increasing the dose to 10 drops, she expressed herself as being more comfortable. It did not disagree with her stomach.

A. G., in the third stage of phthisis. A 5-drop dose was followed by but little relief before doubling the dose. She said it did her as much good as any remedy I had given her.

J. H., had chronic phthisis, following pneumonia, which had occurred three years before. He said the oil of sandalwood almost stopped his cough, and made him feel better in every respect. He slept better, his breath was not so short, and from the use of it he began to gain flesh, could eat better, and began again to walk around.

F. A., had phthisis. After using the oil he said that his cough was not so frequent, hard nor dry.

J. W., had a harassing cough associated with incipient phthisis. The oil did him much good at first, but after a time it was less efficient.

M. M., had incipient phthisis; he said, "5 drops relieve my cough at once; it seems to take the edge off, and I cease vomiting as soon as I begin to take the oil."

B. R., a case of advanced phthisis, found it of no avail: it only seemed to irritate his throat and sicken his stomach.

I. M.. was in the first stage of phthisis. He said, "It stopped my spasmodic cough, and I slept all night, which I had not done for some time."

Mrs. H., had chronic phthisis of two years standing. She was unable to sleep by reason of continuous coughing, and was losing strength rapidly for want of sleep. After taking 10 drops of the oil she could sleep all night; her stomach was not in the least affected by it. From that time she began to improve, and now, ten months later, expects before long she will be able to do some work. Her disease seems to be in abeyance.

M. V., was in the second stage of phthisis, with sub-acute pleurisy at the base of the right lung. She had a constant cough, which failed to yield to any remedies administered to her by a physician, who was her own brother. The cough caused pleuritic pain almost unbearable, with frequent vomiting. The oil stopped the cough promptly, and the patient began to improve in every respect at once, being able to sleep and retain her food, and in addition she stated that she was relieved from shortness of breath from which she had previously suffered.

Some of the most remarkable results were obtained in catarrhal pneumonia. Sandalwood oil generally subdued the cough at once, and at the same time it seemed to have an immediate curative effect.

M. T., a case of catarrhal pneumonia with teasing cough that greatly distressed her, so much that she could not sleep at night. Rest was secured at once by the use of the oil.

The oil was used in a case of catarrhal pneumonia and the cough relieved, but the stomach was sickened, though later on, after persistent use, it still relieved the cough, and the disturbance of the stomach ceased.

A case of catarrhal pneumonia in the early stage, in which the cough was extremely troublesome, was treated with the oil, but it so sickened the patient that its use was discontinued.

In a case of catarrhal pneumonia and pleurisy, the teasing and persistent cough caused so much pain in the side, that the patient expressed himself as being much relieved by the use of the oil, that he was made happy.

A child with catarrhal pneumonia and whooping cough was relieved by 2 or 3 drops of the oil. It seemed to stop the catarrhal cough and lessened the spasms.

I tried it in several cases of whooping cough with little apparent benefit. It did good in the first stage by diluting the secretion.

A woman with cancer of the lung, which caused a very irritating cough, was greatly relieved. She said "it took the edge off the cough."

I also tried it upon several cases of the irritating cough, associated with pharyngitis and hypertrophied tonsils, with but little success.

In chronic bronchitis with asthma, the results were very satisfactory. The following cases were noted.

A. L., the first case in which I gave the oil, had suffered from hard coughing and asthmatic symptoms for a number of years. She was so enraptured with the result, that she gave the oil to her neighbors. She said, "If I take the drops before rising I get rid of my morning cough ; they act like magic and I would not be without them." I gave her capsules of santal oil after a time, but they did not do her half as much good as the same number of drops.

A doctor, with chronic bronchitis and asthma, had his sleep so disturbed that he was unable to perform his duties. The first dose of the oil enabled him to sleep five hours, which he had not been able to do for some time. From this time his cough grew easier, and he eventually found comfort as long as he used the oil.

A man with chronic bronchitis and some asthmatic symptoms, dating back for years, said: "Doctor, these drops are good for a cough, ain't they? They have done me more good than any remedy I have ever tried. I can now lie down at night without coughing, and have less wheezing and difficulty of breathing."

A woman who had suffered with chronic bronchitis and asthma for four years, was relieved of a severe attack of asthma and cough. The oil acted immediately. It was favorable in both symptoms and did more good than any remedy used, except hypodermic injections of morphia.

A brief summary of the cases before reported is as follows:—

In the first stage of phthisis the remedy acted in a very satisfactory manner, giving comfort and great relief to the patients where the cough was very troublesome. Sleep was prolonged and less disturbed and appetite was improved. In the second and third stages of phthisis where the medicine was well received by the stomach, it added greatly to the comfort of the patient, greatly relieving the strain of coughing.

In the cough of catarrhal pneumonia, it not only acted as an immediate quietant to the cough in every case, but also in a number of cases it seemed to have a curative effect, the improvement being prompt and very decided. The profuse tenacious secretion was changed by liquefying it, which relieved the distressing symptoms, and it was finally diminished in quantity.

In chronic bronchitis, especially where the asthmatic symptoms were present, every case in which the oil was tried was improved. All the symptoms were ameliorated.

Pharyngeal coughs were sometimes benefitted, but not as much as I had anticipated. Dyspetic coughs with pharyngitis were in some cases relieved, in others it seemed to be of very little if any benefit.

I tried it upon a few cases of whooping cough. It seemed to help the cough more in the first stage than in the second, the spasms being less severe, but the number of spasms was nearly the same.

In the dry, hacking cough associated with chronic hypertrophied tonsils, its action was extremely variable, sometimes being quite helpful, whilst at other times no relief was experienced.

In a case of cancer of the lung, with disagreeable teasing cough, it was a great comfort to the patient, more so than any of the numerous remedies previously used.

The explosive, persistent and annoying cough accompanying the influenza, which was epidemic here in 1889 and 1890, was as a general rule greatly relieved by the use of the oil, more than by any other of the usual remedies, and even after these had failed.

The oil of sandalwood has been long used for inflammation of the urethra, first by the Chinese, and later by the whole civilized world. If it has such peculiar influence on inflammation of the urethral canal, why should it not be good in diseases of the air passages? It has been used in acute inflammation of the bladder, with good results.

The first and most important thing is to get a pure and effective article. It is often adulterated, and the oil from different localities is quite variable in its curative action on gonorrhœa. That from Mysore is held in the highest esteem by foreign investigators.

What is the best way to administer the oil?

I tried sandal midy and other capsules (this being the most efficacious form in gonorrhœa), but they did not act as well as the plain oil. I suppose it was because the encased oil was carried past the mucous membrane of the throat, the parts not being bathed in the oil as in the cases where it was given on sugar or in hot water, consequently it failed to produce the desired local effect. I usually ordered the oil to be dropped on loaf sugar, and the lump so eaten. In some cases when given, floated in hot water, it seemed to do more good and was better received by the stomach; it can also be floated on cold water, if desired.

How does it act? It seems to have a local as well as a general action.

I. *Local.*—The oil excites secretion, and a cough from an irritated, dry throat will be relieved by the local effect.

II. *General effect.*—As in urethral discharges, it seems to stop the secretion by curing the inflammation, so in some cases it seems to act in the same way on the air passages.

I do not give this as a specific, but as one more remedy for the physician to relieve suffering and promote recovery.

Some of the advantages of using oil of sandalwood instead of opiates in the treatment of cough, are shown in the following statements:—

It does not affect the appetite unless it disagrees with the stomach.

It does not constipate the bowels.

It has no tendency to produce the opium habit, to which chronic cases are liable.

The dose does not need to be increased after long use.

The relief is usually immediate.

It seems to be curative in some cases, changing the course of the disease as well as altering the secretion.

In some of the severe cases I tried other remedies of the same class, and I am sure that better results were generally obtained from sandal oil. I compared it with a lump of sugar alone, and hot water without the oil. I also compared its action with that of the following remedies: oil of eucalyptus, terebane, oil of amber, compound tincture of benzoin, oil of turpentine, copaiba, Dobell's solution, and boracic acid solution.

PYO-HYDRONEPHROSIS

CAUSED BY

PYELITIS AND URETERITIS OF GONORRHŒAL ORIGIN.

By JAMES B. WALKER, M.D., Ph.D.

On entering upon my service in the hospital February 1st, 1887, I found a patient, "R. K.," male, 38 years, white, single, native of Ireland, bar-tender by occupation. His parents living and healthy, and claims to have been well himself until four years ago, since which time he has suffered with "chills and fever." The chills recurred about once a week, somewhat irregularly, accompanied with fever, which, as his chart showed, fell to normal in about twelve hours. A number of these attacks were figured on the chart for a number of weeks he had been under observation, presenting a fair uniformity as to time of recurrence, height of fever and duration. The attack had been attributed to malarial poison; and, after a careful study of his blood, his case had been reported as one of intermittent fever, giving negative results to microscopical study. Anti-malarial remedies had been administered without influence on the recurring paroxysms. There was neither hepatic nor splenic enlargement, and he denied having had syphilis.

On closer inquiry, I learned, that, prior to his chills, he would have a sensation of increasing heaviness and pain in the right lumbar region; that the chill and fever were followed by a copious flow of urine which gave relief to his lumbar symptoms. Pressure elicited tenderness over the right kidney, but there was no appreciable enlargement thereof. With these points in view the urine was examined and found to be acid in reaction and to contain pus in decided quantity. There was no complaint of cystic pain or uneasiness at this time, and the acid nature of the voided urine and its purulent character led to the diagnosis of pyuria from chronic pyelitis. The intermittent retention of the urine, with pain and heaviness, and culminating in the paroxysm of "chill and fever" and its copious discharge with relief to all the symptoms, for a while was thought to be possibly due to a floating pelvic calculus too large to escape and acting as a ball valve. As this part of the diagnosis was pure theory I decided, in opposition to several wiser heads, against an exploratory surgical procedure, and to treat the case from the medical standpoint alone at first and await developments, ready to advocate an operation at any time if warranted.

This treatment consisted in the use of boric acid and citrate of lithium, of each four grains three times a day, with free use of water.

Improvement began at once, the intervals between the paroxysms lengthened, and the general condition of the patient very materially improved, and when I left the hospital on July 31st, he was discharged, entirely relieved of pyuria, pain and recurring chills.

Nothing was seen of him until about the middle of January following, (1888), when he walked into my office and gave a history of continued good health until the beginning of the Christmas holidays, when, after exposure, he had a chill and was having a repetition of the manifestations above described as constituting his previous attack. I gave him a letter, requesting his admission to the ward to which I would fall heir the beginning of the following month. He was admitted, and so strong was the idea of a renal calculus that, after a consultation, an exploratory operation was urged. He, however, declined, desiring my opinion and sanction, as I had relieved him on a previous occasion without the knife, and he naturally shrank from that if milder measures would answer.

On entering on the hospital work the first of February I found him awaiting me, and decided to resume the tactics of the previous year with whatever modifications the developments in the case would warrant. I must state here that the universal sentiment as to the cause of the pyelitis was a stone. In the possibility of this, I shared, that seeming to most easily explain all the features of the case. But I did not believe it sufficiently emphasized, in the face of previous relief under medicine, to warrant surgical interference. The symptoms subsided more rapidly than on the previous occasion, but there was more vesical irritation, and the amount of pus in the urine was greater than before. The tenderness in the loins ceased; the paroxysms of chill and fever disappeared; nothing remained but the pyuria and tenderness over the bladder.

Thinking that there might be a vesical calculus I invited my colleague, Dr. J. William White, who had already seen the case at the January consultation, to explore the bladder for calculus. What was our universal surprise to learn there were three almost impermeable strictures of the urethra, so small that only a fine "filiform" could be passed. These were treated skillfully by Dr. White. After each treatment, despite attempted precautions, chill and high fever invariably resulted. But the cystic symptoms disappeared, the urine resumed its norm and the patient was cured.

His chart shows a chill January 24th from 8 to 10.45 A. M., with temperature 103.8° (F), subsiding to 102° on morning of the 25th and to 97° by evening of that day. On the 26th another chill from 2 A. M. to 4 A. M., with temperature 105.4° On the 27th his temperature reached 101.2°; on the 28th 101.6°; on the 31st 100°.

On February 1st he was placed on boric acid and lithium carbonate, of each grain ii, in pill, and his first chill thereafter was on the 18th, lasting from 10 to 11 A. M., temperature 104.8°. The next on the 18th, temperature reaching only 102°; another on the 28th, temperature 101.2°. After this the temperature became sub-normal between 97° and 98°, remaining so morning and evening, except an occasional rise sometimes in morning, sometimes in evening to 99°, but without chill.

The stricture was dilated March 18th, followed by a chill lasting two and a half hours, the temperature reaching 103.4°; subsiding to 97.4° by next morning and remaining sub-normal until the 26th, when another urethral treatment was accompanied by a slight chill and a rise to 101.4°. Again on April 1st the passage of bougies raised the temperature to 103.4°, accompanied by a decided chill. No more chills occurred and his temperature rose to the normal by April 14th, at which point it remained until his discharge, May 10th, 1888.

The interest in this case to the physician is great, in my estimation, at this time when medication is looked upon as of little utility, especially in hospital work and, perhaps, more especially in a city hospital with its majority of chronic invalids, for so many of whom inebriety has done its worst, and the surgeon's aid is so often needful that we sometimes are in danger of employing it too hastily. The renal symptoms had all disappeared under medicinal treatment the second time as they had at the first, and had the bladder not begun to show irritation, from perhaps the increasing difficulties of thorough and easy emptying through the strictured urethra with its consequent mechanical and chemical annoyances, the man would most probably have been again discharged without the real cause of his trouble being discovered, although two very able surgeons had already seen the case in the consultations. With the light which urethral exploration threw upon the case, it was clear as one of gonorrhœa of the ureter and pelvis of the kidney, resultant from an old gonorrhœa of years standing, resembling the pyo-salpinx of the gynecologists. Roberts, in his classical work on the diseases of the kidneys, places ascending inflammation as one of the causes of pyelitis; though we are apt to hastily conclude that its origin is in the secretion of the kidneys or sedimentary deposits therefrom.

TUBERCULOUS ULCER OF THE STOMACH.

By J. H. MUSSER, M.D.

The occurrence in the writer's experience of a case of the character indicated in the title induced him to examine the recorded knowledge of this affection. Appended to this article is found a bibliography which includes most of the articles that have been written on tubercular ulceration of the stomach. All of the articles referred to were carefully examined and the recorded cases abstracted and tabulated. After this preparation, the writer unfortunately lost the manuscript of the work in question from his carriage, save a few cases in abstract and some data; the bibliography alone was saved. The subsequent notes, therefore, are based on a recollection of the facts which the writer secured. They are correct in general, though lacking in precise details; possibly the reader will gain by this loss, because the impressions, which include the conclusions that had been arrived at, will be more briefly presented than in the elaborate and, perhaps, labored article which the writer had in contemplation. It is believed all the practical portion of the subject is well illustrated in the paper.

The patient in whom this rare condition existed was admitted to the wards of the Philadelphia Hospital in the last stages of pulmonary phthisis, with associate tubercular disease of the intestinal tract. He was a colored man, and 44 years of age; there was nothing peculiar about the origin and course of the disease. It was remarked, at the time of his illness, that he was rather filthy in his personal habits, apathetic and careless about his appearance. He did not expectorate much, while it was noticeable that the pulmonary discharges were swallowed. Apart from the pulmonary and intestinal symptoms, there was no evidence of local tuberculosis of other organs. The patient took food well and without discomfort.

Abstract of Autopsy.—Mesentery toward pylorus and peritoneum about bile-ducts studded with tubercle. Mustard-seed tubercle of peritoneum in lesser curvature, extending from 1½ inches from pylorus to three inches beyond. This corresponded to an area of thickening of the gastric walls, which, on section, were found to be opposite to a transverse ulcer in the lesser curvature, 3 inches in transverse length and 1½ inches wide, floor of which was cribriform. Directly in line of lesser curvature the submucous coat was much thickened, as well as parietal peritoneal wall, about ⅛ inch thick. The posterior end of ulceration extends to peritoneum. In the floor can be seen small tubercles. At the anterior end of ulceration is a small, firm, yellowish tubercle, which, on section, was found to contain cheesy matter; and, undoubtedly, the extensive ulceration was due to the breaking down of similar cheesy nodules. Adjacent to this cheesy nodule a few firm submucous mustard-seed tubercles are seen. The cribriform state, not unlike that seen in the bladder, is evidently composed of muscular structure; mucous membrane around ulcer not thickened. The deep portion of this ulcer at posterior extremity, the size of a nickel, is apparently due to breaking in of a large submucous cheesy mass.

Bronchial glands at root of lung enlarged, particularly on right side, but not involved as generally in the tubercular process as the solitary glands of intestine. Only a few anterior mediastinal glands enlarged. Mesenteric and retroperitoneal glands enlarged, and some caseous. Lungs and other organs of the usual appearance in tuberculosis. The usual histological appearance of the milary tubercle and this cheesy mass were found on microscopical examination, and with proper staining the tubercle bacillus was found in its usual relations.

Simple round ulcer of the stomach frequently occurs with tuberculosis. Welch remarks that, as tuberculosis claims such a large proportion of victims at the age when simple round ulcer is likely to develop, the occasional coincidence should be expected. It has been thought, however, to be a marked predisposing cause of tuberculosis. There is no doubt that the occurrence of this lesion in the stomach may cause such a degree of anæmia and such a debilitated state of the system as would favor infection by the bacillus. It has not, however, been the experience, at least the recorded experience, of any one to find simple ulcer of the stomach arise in the course of phthisis. The occurrence of gastric ulceration subsequent to tuberculosis of other organs is due to tubercular infection of the stomach. While, therefore, we may see simple round ulcer of the stomach frequently occur as a lesion antecedent to tuberculosis of other organs, ulceration subsequent to the tubercular process is of bacillary origin.

As may be inferred from the above, tubercular ulcer of the stomach is never primary. It occurs subsequent to tubercular disease of other organs, and usually ensues when there is general infection. It is more likely to occur in the acute forms of the disease than in the more chronic. As it is of secondary origin, none of the predisposing causes of tuberculosis are operative in making gastric infection more probable. It is within the province of a discussion of this subject to inquire why secondary infection of the stomach takes place, and not to discuss the cause of tuberculosis. From its infrequency it is more natural, indeed, to inquire into the cause of its rarity than the reason for its presence. The above assertions are anticipating some facts now to be stated.

The interest attaching to tuberculous ulcer of the stomach arises largely from its rarity. Some forty cases only are detailed. Cruveilhier, Rokitansky, Klebs and other eminent pathologists of large experience speak of its great rarity. Indeed, it appears to have been the opportunity of individual pathologists to have seen but one or two of these cases. Steiner and Neureuter record four cases in 302 autopsies on cases of tuberculosis in children; Widerhofer two cases in 418 autopsies; and Rilliet and Barthez the unusual number of twenty-one in 141 autopsies. All authorities agree that the last mentioned authors were mistaken as to the nature of the ulcers. In the writer's experience, it has occurred but once in a series of one hundred autopsies on cases of tuberculosis in adults. On the other hand, Lebert thinks it is not so rare in children; and it is quite remarkable to note that of the recorded cases a very large proportion occurred in children; at least ten or twelve are thus recorded. Fernet says it is more frequent in children than in adults. Subsequent to childhood its occurence takes place at different ages, the oldest recorded case being in a person past seventy.

The infrequency of ulceration of the stomach of tubercular origin has been explained in two ways. Pathologists differ about equally in their opinion as to the cause of the freedom of this organ from infection. On the one hand, it is believed that the secretions of the stomach are antagonistic to and virtually destroy the tubercle bacillus; and on the other, a large number, on most excellent ground, believe that the absence of the lymphatic structure in the submucous coat, which forms a lodgment for the bacillus, is the cause of the absence of the disease. For the first theory, experiments are quoted to substantiate it. It has been found over and over again that acids, and particularly the acid secretions of the stomach, do destroy or prevent the growth of the tubercle bacillus. The anatomical reason, however, has much to support it. It is almost impossible, therefore, to decide which is the proper view. The frequent occurrence of the infection in children may be because of the more frequent disorder of the secretions in childhood, coupled with the fact that the sputum is almost always swallowed at this period and therefore more likely to infect the mucous membrane which it bathes. It is quite certain, too, from the case which the writer observed and from the memoranda of other cases, that the subjects of this disease had been careless and did not expectorate as they should or, as in children, had not the strength or the understanding to do so.

Morbid Anatomy.—Tuberculous ulcer in the stomach should not be considered such without the positive presence of the bacillus in the lesion, together with the histological appearances common to tuberculosis; indeed, it may be doubted that one could pronounce an ulcer tuberculous unless the bacillus were demonstrated. The cases which the writer has analyzed and which were recorded since Koch's discovery, were examined for the bacillus and its presence determined. Notwithstanding this criterion, which has been set up by many pathologists for tubercular ulcer, the appearance and association seem to warrant one recognizing this form of ulcer without difficulty. The ulcer or ulcers, for there are more than one usually, are very large. They have been found most frequently in the lesser curvature, in the direction of which their greatest length is seen.

Lebert, quoted by Spillman, reports a certain number of observations in which the ulcers were at the cardia, at the pylorus and at the greater curvature. While the greater number are found in the lesser curvature, their seat is quite variable. Many, indeed, were seen in the anterior wall. The case reported by Litten was a single ulcer in this position.

The mucous coat is entirely destroyed and the ulceration extends to the submucous or muscular coat; the floor of the ulcer is uneven, sometimes clean, sometimes bathed with cheesy and mucous material. Little masses of tubercle are readily seen by the naked eye. Sometimes the floor appears striated or ribbed, not unlike the appearance of the bladder as seen in old people. The edges vary in thickness; in one portion they may be considerably indurated, in another scarcely at all. Often the edges are undermined and overhanging. Usually there is a great deal of submucous infiltration extending from one side of the ulcer as much as an inch or an inch and a half in distance. This on section is found to be caseating and indicates the direction in which the ulcer is extending. The submucous coat is the seat of little islands of infiltration scattered about the ulcer, and smaller ulcers frequently are seen in the vicinity. Indeed, it is usually the rule to find two or more ulcers rather than a single one. The vascularity of the ulcers differs; some are anæmic in appearance, others are situated over vessels or have penetrated the vessel. When death has occurred from this cause the clot and other appearances of the hemorrhage are seen. In one of Hebb's cases the thickened extremity of an artery occluded by a recent clot, projected about one-eighth of an inch above the level of the floor of the ulcer.

The peritoneum over the ulcer is dull, opaque, and usually studded with minute tubercles. Indeed, sometimes the ulceration seems to have extended from without inwards. Förster reports the case of a patient in whom a tubercle of the peritoneal coat of the stomach had softened and produced perforation. Wilson Fox reports a similar case. Beneke (in Förster) writes of a case of tuberculous perforating ulcer, in which the ulceration occurred near a tuberculous lymphatic gland, with degeneration of the serosa.

The unusual occurrence of ulcerous communication between the stomach and colon was observed by Oppolzer, in 1863. He believes it to be of tuberculous origin. Hemorrhage has been referred to. Peritonitis, after perforation, as in simple round ulcer, has been observed in one instance of tuberculous ulceration of the stomach. Paulicke found perforation with fatal peritonitis to have occurred in a group of tuberculous ulcers near the pylorus, one of which had perforated.

The lymphatic glands in the lesser curvature of the stomach are enlarged and caseated. The anatomical appearances in other organs are those of tuberculosis.

Symptoms.—It is quite remarkable that in the large majority of cases the ulceration existed without any symptoms; indeed, most frequently its presence was not suspected. In the cases which manifested gastric symptoms prior to death, they occurred but a short time before this termination. In only one of the large series of cases were the symptoms sufficiently classical to warrant the diagnosis of ulcer of the stomach a long while before death. It was a case of Gerhardt's. Pain, vomiting, and epigastric tenderness, like that of ulcer of the stomach, were present for many weeks. Apart from the combination of symptoms in this case all of the cases were without symptoms, or single gastric symptoms alone were complained of. Epigastric pain and tenderness were noted five or six times. The occurrence of sudden hemorrhage was recorded a number of times, and its occurrence was the first indication of gastric lesion. In the larger majority of the cases in childhood it was the only symptom of gastric origin, and was followed usually in a short time by death. In some of the cases the vomiting that occurred could not have been told from the vomiting of gastritis. Perforation and peritonitis occurred in one case. From a study of the cases, therefore, we are warranted in the statement that the larger portion of cases show no symptoms of the grave ulceration that is present.

Hemorrhage occurred in fully one-fourth of the cases, in a sufficient amount to cause death. It is worthy of note that the hæmatemesis is seen in children as frequently, if not more so, than in adults. Vomiting occurred in many cases, and was the only symptom of gastric disturbance, but was not significant. The same may be said regarding the pain. Of course the significance of these symptoms combined, or of one marked symptom, is much increased by the association with, or occurrence during the course of, tuberculosis. Given a case of the latter with such symptoms, tuberculous ulcer might well be suspected. The striking occurrence of gastric hemorrhage in the course of tuberculosis without previous gastric symptoms, might be considered almost always to be due to ulcer. The gastric symptoms apparently did not influence the course of the primary disease in any way, unless fatal hemorrhage or perforation arose.

Diagnosis.—Little need be said of this. As indicated above, when hemorrhage occurs in the latter stages of tuberculosis, it is probably due to an ulcer of the stomach, and when the classical symptoms of ulcer of the stomach arise during the progress of tuberculosis, they are due, in all probability, to secondary ulceration in that organ.

Conclusions:

1. Tuberculous ulceration of the stomach is rare.

2. It occurs most frequently in children.

3. It is never primary.

4. Gastric infection is probably due to the voluntary or involuntary swallowing of sputum.

5. The presence of the bacillus tuberculosis is the only positive proof of the nature of the ulceration.

6. The anatomical peculiarities of this form of ulceration include the following:

a. The seat of the ulcer is in the lesser curvature, although it may be found in any position.

b. More than one ulcer is usually seen.

c. The ulcers are large and irregular.

d. Miliary tubercles in the floor of the ulcer or in the submucous coat are seen.

e. The ulcers are near vessels and the results of vascular ulceration are found.

f. Small caseating masses are seen in the ulcer or at a portion of the periphery. Similar collections are found in the territory adjacent to the ulcer, in the submucous coat.

g. The peritoneum is studded with miliary tubercle very often.

h. Neighboring lymphatics are involved.

7. In the large majority of cases there were no symptoms during life.

8. Sudden hemorrhage is a frequent symptom and cause of death; it has been particularly noted in children.

9. Epigastric pain and vomiting may occur.

10. The presence of gastric symptoms of this kind, occurring in the course of tuberculosis, is significant of possible ulceration.

11. In view of the fact that the swallowing of sputum is possibly dangerous, expectoration should be insisted upon in adults and its method taught to children.

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SCURVY.

By FREDERICK P. HENRY, M.D.

I REPORT the following cases of scurvy, not so much with the object of throwing new light on its etiology, pathology, and clinical history, as to recall attention to the characteristic features of a disease which many erroneously regard as almost extinct. I have no hesitation in making this charge, because until within the last three years I was myself included in it. At the time to which I refer there was a typical case of scurvy in one of my wards, and the interest excited by its study led to a thorough search for similar cases, not only in the hospital proper, but in the so-called out-wards of the institution. The result was that a number of cases, more or less pronounced, was detected, and this fact, taken in connection with the additional one that the hospital has never since been without one or more cases of the same sort, leads me to the belief that up to the time I speak of, the disease has been generally overlooked.

Etiology.—The cases under my care throw little light on the vexed question of the etiology of scurvy, beyond bringing confirmation to the generally accepted opinion that hard work, under unfavorable hygienic surroundings, a monotonous diet and depressing emotions, are decided predisposing factors.

The most interesting question in connection with the etiology of scurvy is whether there is such a thing as a scorbutic diathesis, *i. e.*, a proclivity to scurvy and allied affections. If by diathesis is meant inferior power of resistance, either congenital or acquired, this question would seem to call for an immediate answer in the affirmative. The degree of resistance to the causes of scurvy depends, to a great extent, upon the condition of the system previous to its exposure to them. The state of the bodily nutrition, the existence of previous disease, and the condition of the blood, are all to be taken into account before answering this question. In my opinion, however, there is such a thing as a scorbutic diathesis. Scurvy is always attended with anæmia; in fact, anæmia is one of the earliest manifestations of the disease, and that there is such a thing as an anæmic or chlorotic diathesis cannot well be denied. The presence of anæmia is a powerful predisposing cause of scurvy, and while it cannot be maintained that the chlorotic and scorbutic diatheses are identical, it must be admitted that the two are closely allied. They are both disorders of nutrition; both find their fullest expression in the blood and the vascular system, and the blood changes in both, so far as concerns the number and value of the red blood corpuscles are, in my experience, remarkably similar. The occurrence of the so-called stigmata in chlorotic and hysterical females may perhaps be regarded as a further point of resemblance between them. The peculiar complexion from which chlorosis derives its name is also strikingly like that of scorbutus. In an early stage of the latter, before any marked signs of the disease have made their appearance, the peculiar earthy pallor of the skin is a prominent sign which might excite the suspicion of scurvy in the mind of one who had had much experience of the disease. W. Koch, in his admirable monograph,[1] states that he has seen this tint, so hard to describe in words, precisely imitated in pictures of the Crucifixion by old Rhenish masters in the gallery of Cassel.

Scurvy is almost universally regarded as a disease dependent upon mal-nutrition, and it seems unquestionable that it never manifests itself in an individual whose diet is abundant and varied. Hunger alone, *i. e.*, the deprivation of all food, does not suffice to produce it, as is well shown by the absence of all signs of the disease in the numerous professional fasters of this and other countries. The opinion, however, is universal that the absence of fresh vegetables from the diet is at least a predisposing cause of the affection. According to Van Swieten, Cocchi was the first to attribute scurvy to this dietetic defect; but the careful researches of W. Koch have proved that Bachstrom was a still earlier advocate of this theory, as is proved by the following quotation: "Concluendum esse nobis videtur causam veram et

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[1] Deutsche Chirurgie, Lieferung 12.

proximam scorbuti nullam aliam esse, quam abstinentiam diuturniorem a quo-cunque genere recentium vegetabilium, sive illa climatis indoli, sive coactioni et necessitati, sive neglectui sit tribuenda."

Other causes to which scurvy has been assigned, but to which at most but a predisposing influence can be attributed, are: mental states, such as nostalgia, the abuse of tobacco, fatigue and idleness, cold, dampness, the use of salt meat, tainted food, bad water, and a deficit of potash salts in the food. With reference to tainted food, it is an interesting historical fact, in view of the recent discovery by Vaughn of the ptomaine called tyrotoxicon, that Van Swieten cautions those predisposed to scurvy against the use of cheese, which, he says, tends to aggravate all the symptoms of scorbutus.[1]

The excessive use of peruvian bark was also believed by the same author to be a cause of scurvy, although he admits that the morbid changes in the humors and solids produced by the disease itself have been unjustly ascribed to this drug. In this opinion of the influence of peruvian bark in producing scurvy, Van Swieten was undoubtedly influenced by Sydenham, whom he quotes and who held that those who had used cinchona bark for a long time were liable to a disease resembling both rheumatism and scurvy, and, therefore, called by him scorbutic rheumatism.[2]

Lind lays the greatest stress on dampness and declares that scurvy is unknown in dry regions: "*Scorbutus locis aridis ignotus est.*"

Salts of Potash.—In 1848 Garrod advanced the theory that scurvy is due to a want of potash salts in food, and maintained it with such ability as to render it for a time generally predominant. Villemin[3] has refuted this theory by a kind of *reductio ad absurdum.* His refutation is well-worth reading, but is too elaborate to be here reproduced. He shows, *inter alia,* that the ordinary food of a sailor contains a considerable amount of potassium; in fact, that to equal this amount by drinking lime juice, the much vaunted antiscorbutic, one would have to swallow this substance as freely as water. He shows also that milk and onions, both celebrated as antiscorbutics, are very deficient in potassium as compared with salt beef and dried peas. In a word, it cannot be shown that scorbutics receive less potash into their system than do those who escape the disease.

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[1] Imó quotidianis observatis constat, scorbuticos omnium symptomatum augmentum percipere, simulac per paucos tantum dies tali caseo utuntur. Comment iii. p. 598.

[2] Sydenham Opera. p. 260, Syd. Soc. Edit.

[3] Bulletin général de l'Acad. Roy de Méd., vol. xxxix.

One of the apparently strong arguments of Garrod's theory is that the blood and urine of scorbutics contain less than the normal amount of potash, but this is an effect, not a cause, of the disease. The salts of potash in the blood have their seat in the red corpuscles, so that a diminution in the number of the latter entails a deficit of the former. As Villemin declared, the blood, in any well marked case of anæmia, is deficient in potash and, as will presently be seen, the degree of anæmia in scurvy is sometimes very great.

It is scarcely necessary to say that the cause of scurvy has been supposed to be mycotic, but it is worthy of notice that one of the most elaborate arguments in favor of the infectious nature of the disease was made as long ago as 1874 by Villemin.[1] The arguments advanced by him appear in the highest degree convincing until one has read the reply to them and, in the opinion of the writer, their refutation, by Le Roy de Méricourt.[2] This author is well qualified by many years experience as a naval surgeon to express a valuable opinion on this subject, and he shows, in the clearest manner, that many of the facts upon which Villemin's theory is based are either erroneous or but partially correct.

W. Koch is also a believer in the infectious nature of scurvy, but, it appears to the writer, on insufficient grounds, for he acknowledges that all his attempts to inoculate the disease as well as to detect a specific organism have thus far been fruitless. These failures to inoculate cannot be attributed to a want of susceptibility on the part of animals, for scurvy has been observed in the dog, horse, sheep, goat and gorilla.[3]

An opinion has long prevailed that a diet of salt meat will give rise to scurvy. Le Roy de Méricourt is an adherent of this theory and relates cases in support of it, but as he also relates other cases in which scurvy attacked individuals whose food was purely farinaceous, he appears to contradict himself. The contradiction is, however, only apparent, for he lays the greatest stress upon abstinence from fresh vegetables, and there can be little doubt, in my opinion, which has been formed after a careful examination of a great deal of evidence, that the chief predisposing cause of scurvy is a monotonous diet, either animal or vegetable, from which fresh vegetables are excluded. In connection with this statement the following cases are of interest:

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[1] Loc. cit.

[2] Bulletin de l'Acad. de Méd., vol xxxix.

[3] For references to scurvy in animals, see W. Koch, loc. cit., p. 136.

In 1855 there was stationed at Boulogne a camp of 31,000 men, among whom were 159 cases of scurvy. The only officer attacked was the band master (*chef de musique*) of a regiment, who applied to the surgeon, M. Périer, for leave of absence. He presented well marked signs of scurvy and, on inquiry, it was ascertained that he had been suffering from some abdominal affection, for which a quack had prescribed an exclusive diet of ham. After this had been continued for three months, the signs and symptoms of scurvy made their appearance.[1]

The same author reports the case of a physician who, for therapeutic reasons, had been placed on an exclusive diet of roast meat. After about a year of this régime he was attacked with scurvy.

Another case was a workman at Brest, living under excellent hygienic conditions, except as regards his food, which he prepared himself and, to save trouble, limited to farinaceous articles. He was attacked with scurvy and was promptly cured by continuing to live on the same food *with the addition of fresh vegetables.*

A lady in affluent circumstances, occupying a chateau near Montargis, had for a long time lived upon nothing but bread and chocolate. She presented the signs of scurvy in high degree and, refusing to alter her mode of life, succumbed to the disease.[2]

In all the cases under my care the diet has been extremely monotonous, consisting almost exclusively of bread and meat. Close inquiry is often necessary to elicit this fact, for it is one thing to be supplied with an abundance and variety of food and quite another to partake of it. A young man under my care in private practice, who presented the initial signs of scurvy, had a positive aversion for lettuce and other green vegetables. Another patient, a boy of fifteen, with spongy gums and decided anæmia could, with difficulty, be induced to eat anything but bread and meat. Such a bill of fare might be well styled a *pro-scorbutic* diet, and the time requisite for it to give rise to scurvy varies with the individual diathesis. Le Roy de Méricourt believes that a monotonous diet and privation of fresh vegetables for about sixty days will give rise to scurvy.

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[1] Le Roy de Méricourt, loc. cit., p. 1005.

[2] Bulletin de l'Acad. de Méd., vol. xxxix., p. 1008.

Most writers on scurvy assign a causative influence to the nervous system, but regard it as emanating solely from the cerebrum. Nostalgia and other depressing emotions and fright have been supposed to be the cause of the scorbutic manifestations; but, undoubtedly in such cases, scurvy was already present, and the nervous symptoms were either coincidences or necessary concomitants of the disease. It would be surprising if depressing emotions did not accompany such a disorder of nutrition as lies at the root of scurvy.

Some writers have gone further and instead of supposing the influence of the nervous system to be merely general, have argued that the nerves might be specially concerned in determining the site and arrangement of the scorbutic eruption. For example, W. Koch refers to a case of Lendesdorf in which the eruption was limited to one lateral half of the body, and which, therefore, gave rise to the view, in my opinion a mistaken one, that the situation of the scorbutic patches is determined, more or less, by nervous influence. About a year ago I reported a case, which I think has a marked bearing upon this question of nerve influence, and which answers it in the negative.[1] The patient was an elderly male with typical signs of scurvy, who was at the same time hemiplegic. Now the inference seems warrantable that if the nervous system is concerned in determining the seat and extent of scorbutic eruptions, the cutaneous lesions in this case would have been remarkable for their asymmetry. The contrary, however, was the case, the lesions being so symmetrical that "every large ecchymosis and small petechial spot seemed to have its counterpart on the opposite side."

Symptoms and Signs.—Before recording the brief notes of my own cases I will give, in some detail, an account of the principal signs and symptoms of scurvy, and in so doing I will follow closely in the footsteps of W. Koch. This part of my paper will, therefore, be a sort of running commentary on his valuable work, although, as will be seen, my opinions differ from his in several important particulars.

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[1] Med. and Surg. Reporter, April 27, 1889.

Hemorrhages.—These have their seat in the subcutaneous, the inter and intra-muscular tissues, and in the muscular substance itself. In the latter instance they may give rise to sclerosis of the muscles and contractures, the position assumed being one of flexion. The form of the subcutaneous extravasations is usually diffuse, but may appear in the form of nodules, to which the name of scorbutic furuncles has been applied. The hemorrhages in the skin are highly diagnostic; in fact, they are pathognomonic to one familiar with their appearance. They occur either in the form of large bruise-like extravasations or small petechial spots surrounding a hair follicle, as is evidenced by the fact that their centre is perforated by a hair. Their almost constant seat is the anterior surface of the leg.

Bones.—When the blood is extravasated beneath the periosteum it may lead to destruction of the underlying bone, which, in such cases, becomes rough and ridged and undergoes losses of substance manifested by palpable depressions, which may communicate with the medullary cavity. The true nature of the process, whether an osteo-malacia, a rarefying osteitis, or an osteo-myelitis, is as yet unknown.

Scurvy involving the bones has frequently been mistaken for rickets, especially when it involves the epiphyses of the long bones or the neighborhood of the joints. In a certain number of cases infantile scurvy and rickets co-exist, but this is far from saying that there is any causal nexus between them, for scurvy is distinguished by its proclivity to engraft itself upon any disease of nutrition. It is not a very rare event for scorbutic hemorrhage to cause a separation between the epiphysis and diaphysis of a bone. The shaft of a bone may be so impaired as to its nutrition by hemorrhages—sub-periosteal and medullary—that it may be easily bent or fractured. Cases of so-called spontaneous fracture, *i. e.*, fracture from slight injury or exertion, such as lifting a bucket or turning in bed, have been reported by various observers.

The osteo-cartilaginous lesions of scorbutus may sometimes be easily mistaken for those of syphilis. For example, W. Koch has observed a depression of the nasal cartilages precisely like that induced by caries, the deformity being caused by a detachment of the cartilage from the nasal bone. Lind has seen a similar case. The ribs may be separated from their sternal cartilages, causing serious deformity of the chest. In the first stages of this process the costal cartilages are swollen so as to simulate the well known lesion of rickets. Livid patches over the parasternal line or elsewhere on the surface of the body should, in such cases, excite the suspicion of scurvy and lead to a thorough search for other signs and symptoms of the disease. The complete detachment of rib and cartilage belongs to the later and graver manifestations of scurvy. When several cartilages are detached on both sides, the sternum may be depressed into the anterior mediastinum, whereas, when the detachment is unilateral, the bones on one side project beyond the corresponding cartilages. The separation of the costal epiphyses gives rise to a grating sound on respiration that is quite diagnostic, and when such separation has occurred in other parts of the body, well marked crepitus may be produced by motion, either active or passive. Cases are recorded in which movements, such as turning in bed, gave rise to cracking sounds, such as are produced by shaking a skeleton.

Gums.—It is a mistake to suppose that the most constant lesions of scurvy are to be found in the mouth. In many epidemics the affection of the gums, so characteristic, when present, has been conspicuous by its absence. This is a fact of decided importance, for a distinction between scorbutus and purpura has been made on the ground that the gums are always involved in the former disease and never in the latter. There can be no doubt that the condition of the teeth is an important factor in determining or preventing the localization of the disease in the gums. In toothless infants and in old people who have lost their teeth, the buccal lesions are absent. They are always situated in the immediate neighborhood of a tooth, which is generally decayed, and their severity is in direct ratio to the unhealthy condition of the teeth.

Throat.—In the majority of cases the throat presents characteristic lesions, such as granulations, ulcerations and ecchymoses. The throat is rarely examined in cases of scurvy. Koch states that in every case in which he inspected the throat he found one or more of the alterations just referred to.

Hæmaturia.—A moderate hæmaturia may have its origin in the renal parenchyma or pelvis, but when profuse is probably derived, at least in part, from the ureter or bladder. Koch points out that the absence of clots does not exclude either bladder or ureter as the source of hemorrhage, because, in scurvy, the latter takes place by diapedesis rather than by rhexis and, therefore, is so gradually and thoroughly mingled with the urine as to prevent the formation of coagula.

Effusions.—Pure serous effusions have been observed in scorbutus, but generally appear toward the end of the disease and in very anæmic subjects. They can, therefore, scarcely be considered as directly dependent on scurvy. Scorbutic effusions are, in the great majority of cases, hemorrhagic. In fact, in my opinion, a hemorrhagic effusion is presumptive proof of a scorbutic diathesis. According to Koch, the frequency of effusions, as regards locality, is in the following order: 1. Pleural; 2. Pericardial; 3. Peritoneal.

Respiration.—Shortness of breath may be caused by "sclerosis" of pectoral, intercostal, or serrati muscles, by lesions of the costo-clavicular articulation or by separation of the ribs from the sternal cartilages. Dyspnœa from such causes may be greatly aggravated if, in addition, there is hyperaemia of the respiratory passages. Hæmoptysis may also occur in such cases; and it is a question how far this symptom, in general, when not accompanied or followed by the signs of phthisis, may be due to a scorbutic diathesis.

Attacks closely resembling pneumonia, ushered in with fever, pain in the side, dyspnœa and rusty sputum, are often due to pulmonary infarcts, the so-called pulmonary apoplexy. The distinction between such attacks and genuine pneumonia is made chiefly by observing the protracted course of the former, especially the long continuance of the bloody expectoration. The latter is usually more profuse than in pneumonia, and on close inspection may be seen to contain minute coagula. According to Koch the pneumococcus is absent in these cases. Such attacks are by no means necessarily fatal, but are of very grave significance if they occur in persons whose lungs are the seat of tubercles, and especially if they contain cavities. The older physicians mention gangrene as a frequent result of pulmonary apoplexy; and Koch refers to a case in which the entire left lung was converted into a suppurating cavity after such an attack.

Pleurisy.—The last mentioned and much quoted author describes attacks of pleurisy sudden in origin and acute in symptoms, accompanied with copious effusion, frequently bilateral.

These attacks are invariably fatal, and are often synchronous with sanguineous effusion into the pericardium and peritoneum. I have seen no such attacks as these; in fact, in the only case of scorbutic pleurisy with large effusion which has come under my notice, the course of the affection was remarkably insidious.

It has been stated that a hemorrhagic effusion into the pleura is invariably indicative of the fact that the inflammation giving rise to it is of a tubercular nature. To those who hold that all pleurisies are tubercular, such a statement is, of coure, a truism. Taken in the sense that a tubercular pleurisy necessarily gives rise to a hemorrhagic effusion, it is absolutely incorrect. That the inflammation of the pleura giving rise to large effusion, whether serous, purulent, or hemorrhagic, is usually tubercular, is a generally accepted fact. Kelsch and Vaillard[1] give reports of the minute examination of sixteen cases of pleurisy, in all of which tubercles were found, and they state that in all the autopsies of pleurisy that they had made for three years, tubercle was present. Exception may be taken to their report on the ground that, although the anatomical appearances were those of tubercle, nothing is said with reference to the presence or absence of the bacillus.

As Fraentzel remarks:[2] "When we consider the delicate structure of the newly formed vessels and their great abundance in the pleuritic pseudo-membrane, as well as the frequency with which hemorrhagic spots are seen on its surface, the wonder is that every effusion is not hemorrhagic."

"Hemorrhagic pleural effusion, in general, is dependent rather upon a constitutional condition, such as scorbutus or purpura, than on any local peculiarity of the inflammatory process."[3]

Heart.—Signs of cardiac weakness, such as palpitation, a sense of oppression, and a tendency to syncope, are always present. Owing to diminished systole, the two sounds of the heart may be of equal intensity and, therefore, not easily distinguished. The cardiac impulse is felt with difficulty or is absent altogether, and the pulse, as a rule, varies from 90 to 120. It is often dicrotic and always easily compressible.

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[1] Arch. de Phys. Nom. et Path., 1886.

[2] Ziemssen's Cyclopaedia.

[3] Clinical Lecture on a case of Pleurisy with large hemorrhagic effusion, by F. P. Henry, Med. News, June 30, 1888.

Pericarditis Scorbutica may occur with acute febrile symptoms or in an insidious manner, and in either case is a most serious complication.

Blood Vessels.—The most careful search for lesions of blood vessels in cases in which subcutaneous hemorrhage was abundant, has always yielded negative results. Marjolin[1] injected liquid substances into the vessels of those who had died of scurvy, in the hope of finding the liquid in the tissues which were the seat of hemorrhage, but without success. Fatty and amyloid degenerations of vessel walls are regarded by Koch as complications; and the same writer considers such appearances as swelling of the capillary endothelial cells and their separation from each other, as due to post-mortem changes. The alterations which permit the diapedesis of the blood in scurvy are probably of a chemical nature.

Blood.—Examinations of the blood have yielded no uniform results, partly because they have been made at different periods of the disease; they, therefore, possess no absolute significance, but are of great practical interest in individual cases. I will, therefore, give the results of my blood examinations in connection with the report of each case in which they were made, merely pausing to mention that in eight counts of the corpuscles, in as many cases, the highest number was 5.320000 per cubic millimetre and the lowest 1.980000.

Course.—The beginning of scurvy is generally insidious and its course slowly progressive. The exceptional cases which run an acute course are generally described under the head of purpura. Absortive forms are encountered in all epidemics and are doubtless not uncommonly overlooked in private practice. In such cases the petechiæ are few and far between, or they may be entirely absent, the disease being represented by a spongy state of the gums and a certain degree of anæmia. According to W. Koch, hemeralopia may be the only symptom.

Complications.—The influence of scurvy occurring in the course of another affection is decided, and more or less readily recognized by those who have had opportunities of studying the disease. I have just expressed my opinion that a hemorrhagic pleuritic effusion is far better evidence of scorbutus than of tuberculosis, as formerly supposed; and the same is true of a sanguineous pericardial effusion. I cannot, however, agree with Koch, who is inclined to regard a hemorrhagic character of small-pox, scarlatina and typhoid fever as evidence of a mixed infection. This author regards scurvy as a specific infectious disease, which may be inoculated by vaccination or other wounds of the skin and mucous membrane. He argues that when the eruption of scarlatina and variola becomes hemorrhagic, it does so because of a double synchronous infection with the organisms of these eruptive fevers and of scorbutus, and that the petechial and other hemorrhagic signs appear at the height of the disease because the incubation stages of the eruption fevers and of scurvy are of equal length. When the hemorrhagic manifestations appear during the stage of convalescence of one of the eruptive fevers it is, says Koch, because of a scorbutic infection occurring in its course.

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[1] Quoted by Koch, Loc. Cit., p. 57.

The above is pure hypothesis and is apparently based on the erroneous assumption that every form of diapedesis is due to scorbutus. This is far from being the case. As is well known, the red blood corpuscles may be disintegrated by a number of substances, both vegetable and mineral, the resulting signs in well marked cases, being petechiæ, hæmoglobinuria and jaundice. In some very susceptible individuals it suffices simply to dip the finger in iced water in order to induce a local *hæmoglobinæmia* of the part affected. This vulnerability of the blood corpuscles undoubtedly varies within wide limits, and this fact constitutes a sufficient answer to one of Koch's arguments, which is that petechial and other signs of hemorrhage may appear during the course of mild attacks of the various exanthemata. In such cases the hemorrhagic tendency may be as well explained by predisposition as by scorbutic affection. Koch is certainly in accord with most modern pathologists, who seem to have agreed to eliminate the word "diathesis" from their vocabulary.

As speech is an expression of thought, so is disease an expres- of diathesis. Thought expresses itself in many other ways than by speech: by gesture, for example, and by expression; and the prevailing tone of thought, the mental diathesis, so to speak, finds permanent expression in the countenance and indicates to even a casual observer what is known as the disposition. Analogous facts are true of the prevailing tone or tendency of disease, and it is of the greatest importance that it should be recognized.

The so-called cases of purpura variolosa observed during most epidemics of variola, cases which run so rapid a course that the papules have not time to develop, are regarded by Koch as malignant scurvy, in no way related to small-pox. This opinion will, I think, be dissented from by every experienced practitioner who, like myself, must have observed cases which positively refute it.

It seems to me also that Koch contradicts himself when he speaks of pneumonia and dysentery occurring in the course of scurvy[1] as a localization of the scorbutic process and not a separate infection. Why may not pneumonia and scurvy be independent affections as well as scurvy and the eruptive fevers?

The diagnosis of rheumatism complicating scurvy is to be made with great caution, for deep-seated hemorrhages in or around the joints, not giving rise to discoloration of the skin, may simulate most closely the motor and sensory symptoms of rheumatism.

The foregoing remarks have been purposely limited to the most prominent and, therefore, the most diagnostic features of scurvy. For many further details concerning scorbutic affections of the various organs of the body, together with a discussion of the relations between scurvy, hæmophilia and the different varieties of purpura, the reader is referred to W. Koch's monograph.

The main points in my description have been derived from the following cases, of which the interest has been, therefore, to a certain extent anticipated:

Case I.—Andrew N., æt. 41, admitted May 19, 1888. On inspection a slight extravasation of blood was observed on outer side of left ankle and foot. The whole of the outer side of same leg, the calf and the popliteal space were indurated and of a purplish hue, with here and there a somewhat darker spot, but no petechiæ. The right leg was in a similar condition but not in such marked degree. Patient has an unusually fine set of teeth and the gums exhibit only one swelling between the canine and left lower lateral incisor teeth. Examination of urine negative.

Eyes examined by Dr. de Schweinitz, June 9, 1888. Both discs irregular; outer half of each pallid; deeper layers gray; veins full; arteries comparatively small; slight bilateral epithelial choroiditis; no hemorrhages.

This case is of interest on account of the examination of the eye-ground. It was a well marked case of scurvy in a Hungarian, who could give no intelligible account of himself. The course was one of rapid improvement.

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[1] Loc. cit., p. 88.

CASE II.—Henry W., German, æt. 68, admitted May 24, 1888, has been living in the out-wards for about one year. On admission his gums were swollen, spongy, of a deep purplish red color, and bleeding spontaneously. The left ankle joint is surrounded with an extravasation of blood which extends upward nearly to the knee. The right leg has a few ecchymotic spots over the surface of the tibia. The breath is horribly fetid. Examination of urine negative. An examination of the blood on June 1, 1888, gave the following result: number of red corpuscles per cubic millimetre, 5.150000; color, 60 per cent. of the normal; white corpuscles not increased.

Eyes examined by Dr. de Schweinitz, June 15, 1888. Pupils unequal, the right being the smaller; L. E.: Posterior capsular opacity of the lens, permitting but a very dim view of the fundus; general choroidal disturbance; gray oval disc with hazy eyes; R. E.: similar. Studied with difficulty on account of narrow pupil.

CASE III.—John H., Hungarian, æt. 24, of a dark, muddy complexion, was admitted May 31, 1888. He has an excellent set of teeth and the affection of the gums is slight, consisting merely of two projections of spongy tissue between the lower incisors. His legs are completely covered as far up as the knees with confluent areas of extravasated blood. Immediately below the knee on the inner surface of the left leg there is a hard, purplish tumor about the size of a small egg, and another about the same size just above the ankle over the surface of the tibia. The surface of the latter tumor is superficially ulcerated. Smaller ulcers, of which the area is about equal to that of a quarter-dollar, are scattered over the right leg and over both feet. They look as if they had resulted from the rupture of vesicles. Small petechial spots surrounding the orifice of the hair follicles are scattered over the surface of both thighs. Examination of urine negative.

Blood examined June 9, 1888; number red corpuscles, per cubic m., 5.320000; color, 65 per cent.; eyes examined by Dr. de Schweinitz, June 9, 1888; R. E.: small oval disc, the upper and nasal portions being veiled by a hazy retina; arterial lymph-sheaths unusually distended; some shining dots in nasal portion of retina; color of disc and size of vessels normal; L. E.: very similar; veins rather full and pulsating.

CASE IV.—George S., Hungarian, æt. 23, laborer in a lime quarry, admitted May 22, 1888; dates his illness from May 18. His teeth are good and are all present. The gums are uniformly spongy and of a purple color. There are extravasations of blood over both knees, and the legs and thighs are covered with small petechial spots surrounding hair follicles.

Examination of urine negative; examination of blood June 4, 1888: number of red corpuscles per cubic m., 3.950000; color, 65 per cent.; no increase in white corpuscles.

CASE V.—Daniel D., Irish, teamster, æt. about 65, admitted to the hospital from the out-wards May 28, 1888. Patient was sick in the out-wards three weeks before admission. The gums are uniformly swollen and tender. Of the extremities, the right leg is the only one affected, it being indurated from the ankle to above the knee, the induration being especially marked in the popliteal space. Over the surface of the tibia there are large ecchymotic patches.

Examination of urine negative; eyes examined by Dr. de Schweinitz; R. E.: evidences of former iritis; an oval disc, gray and semi-atrophic; arteries unchanged in size; veins a little fuller than the arteries; L. E.: exactly similar in appearance, except that there is a yellowish patch of choroiditis in the macula; pupils react sluggishly to light.

Case VI.—Alphonse A., Italian, laborer, æt. 42, admitted to the hospital May 19, 1888. He has good teeth but the gums are uniformly swollen, although only to a slight extent and of the usual purplish red color. The legs, thighs and arms are covered with small petechial spots surrounding the openings of the hair follicles. The inner surface of the right knee is covered with large ecchymotic patches, and similar ones are scattered over the leg of the same side. The scorbutic signs are much less prominent on the left leg.

Blood examined May 22, 1888: number of red corpuscles per cubic m., 1.980000; no increase in white; in fact, they appeared to be diminished in number, as I examined a large number of fields without finding any, and at last, after a prolonged search, succeeded in finding *one*. The corpuscles were not materially altered in size or shape. The requisite amount of blood (20 cubic millimetres) could not be obtained for Gowers' color test, although several deep incisions were made in three separate fingers. The blood would at first flow readily and then stop altogether before a good sized drop had escaped. It seemed as if all the blood in the finger pulp had been squeezed out, for no more could be obtained. I have met with more or less difficulty in obtaining blood from the finger pulp in all well marked cases of scurvy, and I believe that any fear of starting a serious hemorrhage by such punctures may be dismissed as chimerical.

Case VII.—A Hungarian occupying bed 4, ward 9, admitted with considerable swelling and great tenderness of both legs, which are covered with large, bruise-like patches of extravasation. The largest patch, about the size of the hand, is on the anterior surface of right leg. It is of a deep purple color, and over it the epidermis is thick and desquamating. The gums are greatly swollen, tender, bleed on slight pressure, and project in fungous masses between the snag-like teeth. No accurate history of the case can be obtained. The patient presents a very anæmic appearance, but is by no means emaciated; on the contrary, his tissues retain their bulk The lips and palpebral conjunction are of a milky-white hue.

May 16, examination of blood: number of red corpuscles per cubic m., 2.775000; white somewhat increased, about 20000 per cubic m.; color, 30 per cent.; eyes examined by Dr. de Schweinitz; L. E.: an oval disc, the nasal edge slightly mellowed; wide distension of the central lymphatic sheaths along both arteries and veins; a number of fine yellowish points in the macula. Below the disc, between the lower artery and vein, there is an irregular white patch made up of a group of small white specks. R. E.: appearance of the disc and lymph sheaths similar; the disc is distinctly gray in its lower layers. There is a similar white patch in the lower field through which are dotted many shining points, probably cholesterine crystals,

Case VIII.—John McK., Irish, æt. 68, admitted to the hospital from the outwards suffering from bronchitis. This soon improved, but the patient did not gain strength and was averse to rising from bed. A few days after his admission there was a sudden rise of temperature, and the day after I was asked to examine his arms, which were covered with a pink eruption precisely like that of scarlatina. The question, decided by me in the negative, was whether the case could be one of variola. This disease was somewhat prevalent in Philadelphia at the time referred to and had appeared in one of the wards of the hospital, though not in the one occupied by John McK., and two of the nurses had been infected with it.

The eruption deepened in color and extended until it had almost covered the entire body. On the lower extremities it was particularly well marked, the legs being of a uniform, deep purple color. On the arms it was also confluent, while on the trunk it was scattered in spots and patches. Soon after the appearance of the eruption, bleeding set in from the nose and gums and was of daily occurrence for nearly a week.

Blood examined May 7, 1888: number of red corpuscles per cubic m., 3.310000; color, 35 per cent.; white corpuscles per cubic m., 20000; proportion of white cells to red, 1 to 165. In many of the red cells the coloring matter was collected in the centre as if there might be a tendency to separation of the hæmoglobin. There was no appearance of blood or its coloring matter in the urine, which was also free from albumen.

Examination of eyes by Dr. de Schweinitz; R. E.: Media clear; disc small, oval, not grayer than consistent with age; retina somewhat cloudy around disc; otherwise no changes. L. E.: small oval disc; undue fulness of veins; disc distinctly grayer than normal and hazy toward the nasal edge.

The eruption in this case differed materially in appearance from that of any other case of scurvy observed by me, and it is a matter of opinion whether the affection might not, with equal propriety, be regarded as purpura. In fact the patient was exhibited in one of the medical clinics by one of my colleagues as a case of purpura. This was the only reason that deterred me from lecturing on it at a subsequent clinic of my own as a case of scurvy.

Case IX.—E. S., Russian, æt. 48, peddler, admitted April 11, 1888, suffering with erysipelas; at the end of two weeks he had entirely recovered. On May 19 he had a relapse and again recovered in about a week. About June 1 an eruption consisting of small punctiform spots made its appearance, rapidly became confluent and extended over the trunk, arms and thighs. The gums also became swollen and tender and bled on the slightest pressure. During the attack of erysipelas, the urine contained albumen in considerable quantity, as well as blood, and epithelial, hyaline and granular casts. In this case the scorbutic attack was doubtless precipitated by the erysipelas.

Case X.—Ward 9, bed 15. An old out-warder, æt. about 60; has been back and forth between the out-wards and the hospital for the last three or four years. Manifestations of scurvy well marked, though not excessive, in gums, from which there was oozing of blood at the time of admission. Large purplish extravasations occupying anterior surface of lower thirds of both tibiæ. No particular swelling or induration and no œdema. Some tenderness about tendo achillis. There was considerable hemorrhage from the bowels at the time of admission.

Blood examined by Dr. Hamill, the resident physician, March 19: number red corpuscles per cubic m., 4.210000; color, 60 per cent.; bloood dark and venous looking; evidently diminished in quantity, as it was difficult to obtain enough (20 cubic m.) for Gowers' color test. This man had been living exclusively on bread and meat; said he never ate potatoes.

Case XI.—This case was under the care of Prof. Tyson and was shown by me in one of my hospital clinics, by his permission, as a typical example of scurvy. I have preserved the following scanty notes:

The man presented the buccal lesions of scurvy in extreme degree, the gums actually covering the upper and lower incisor teeth. On the legs the scorbutic signs were limited to petechial spots. Blood examined by Dr. Hamill: number of red corpuscles per cubic m., 4.160000 ; color, 60 per cent. This patient was also an out-warder.

An apparent omission in the above brief reports is an account of the daily or weekly progress of each case. As this was uniformly favorable, detailed statements to that effect in connection with each report, would have led to wearisome repetitions.

The treatment consisted in the systematic administration of lemon juice, about two ounces daily ; raw potatoes, grated ; onions, raw and cooked ; and in the more anæmic cases, iron, usually in the form of Bland's pill. The buccal and other lesions of course received appropriate local treatment.

In conclusion, in connection with the fact that several of my patients were "out-warders," *i. e.*, inmates of the Almshouse, I may say that this fact bears out the statement on a previous page that it is one thing to be provided with appropriate food and quite another to partake of it. The diet of the Almshouse is decidedly antiscorbutic, consisting of vegetable soup daily ; potatoes, onions and turnips twice a week ; coffee, tea and bread daily and plenty of beef and mutton.

Nothing characteristic was observed in either the pulse or temperature, although, as it is scarcely necessary to mention, the most careful records of each were kept. As regards temperature, I cannot add anything to the following opinion expressed by me in the course of a clinical lecture on scurvy :[1] "Although probably no case of scurvy runs its course without abnormal rise of the body temperature, fever is not an essential feature of the disease, but is secondary to the inflammatory complications of gums, skin, connective tissue, bones, joints, etc.

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[1] Med. and Surg. Reporter, June 16, 1888.

ON THE RELATIVE VALUE OF SOME OF THE CARDIAC STIMULANTS.

By W. E. HUGHES, M.D., Ph.D.

There is evidently a sufficient explanation of the varying results obtained in the use of the different cardiac stimulants if we could only arrive at it. Sometimes one, sometimes another will prove more satisfactory, and it is with the idea of deducing some rules governing their action clinically, and thereby facilitating their correct administration, that this paper is written. Were the condition of the heart alone to be considered, the question would resolve itself into which stimulant was capable of producing the most marked effect upon the cardiac muscle, directly, or upon the centres controlling this muscle; but beyond this must be taken into consideration the condition of the arteries and the kidneys, and it is probable that a partially satisfactory explanation of otherwise inexplicable and contradictory variations in the effect of these stimulants may be arrived at by such consideration. The condition of the arteries is of great importance, for these stimulants are none of them simple in their action and have their effect limited purely to the heart, but are complex and affect more or less markedly the blood pressure by their action upon the peripheral circulation. So that in one case a drug may be actually harmful, while in others closely related distinctly beneficial. The condition of the kidneys influences directly the state of the blood pressure, thus in different cases pointing out the use of different stimulants. In addition to this there seems to be a local effect produced upon these organs in varying degrees by the different stimulants, so that some of them more than others promote renal excretion.

While in the majority of cases a general rule may be laid down governing the selection of the most efficacious drug, yet it must be admitted that in many cases such a rule will not hold good, and here the choice of the drug to be administered can be arrived at only after extended experimentation. Of course other conditions than those directly connected with the circulation must frequently be taken into consideration, and may govern the particular remedy to be chosen, irrespective of its value as a pure cardiac stimulant. Of these the condition of the gastro-intestinal system will probably be most important.

The results tabulated below have been obtained principally by an attempt to keep constantly in view the relative values of the condition of the heart, arteries and kidneys and, though possibly at variance with the results obtained by other observers, still seem to hold good in the series of cases from which they were drawn. The conclusions are based upon purely clinical grounds, and no attempt has been made to explain the action of the drugs upon their previously determined physiological action.

In all, during the past six months in the Hospital, about fifty cases have been observed and used in the preparation of this paper, and the conclusions drawn from them have been reinforced by the results obtained in cases seen at other times. The cases cited are all of them severe ones, where the need of cardiac stimulation was urgent and where the results obtained would of necessity be directly due to the remedy employed. They are chosen because they illustrate, to a certain extent, how the value of the stimulants is influenced by varying conditions of the different parts of the circulatory apparatus, and because they present in a compact form means for comparing their value.

Case I.—Hypertrophied and dilated heart: valvular disease. John S., age 38, was admitted July 30, suffering with great dyspnœa and œdema of the ankles and feet. He complained occasionally of excruciatingly severe pain, originating about the praecordia, running up to the left shoulder and down the left arm. The apex beat was in the sixth interspace in the nipple line. The action of the heart was rapid and irregular, and there was a double mitral and an aortic direct murmur. He was put on tincture of strophanthus, 4 drops, three times daily, the dose to be increased one drop daily. August 4, there being no improvement, he was put on citrate of caffeine, 15 grains, three times daily. There was marked increase in the quantity of urine but no positive improvement. August 12, put on digitalis in full doses, but, as his condition grew worse and the anginal pains were extremely troublesome, the digitalis was stopped and nitro-glycerine given, with no good result. August 18, put on caffeine again, with a slight improvement, which soon passed away.

August 23 he was returned to strophanthus, and the dose rapidly increased to 12 drops, three times daily, when marked improvement began. Afterward this dose was cut down to 9 drops and continued at that. Since then he has been doing quite well on a continuation of this treatment. Several times in paroxysms of especially severe dyspnœa he was given hypodermics of sulphate of strychnia, $\frac{1}{30}$ grain, with marked and immediate good effect.

Here strophanthus, as compared with digitalis, was certainly more valuable, but its good effects were not visible till a dose of 12 drops had been reached; after that it was possible to cut down the dose somewhat and still retain the good effect. The presence of severe anginal pains, without any high blood pressure, arterial sclerosis, or evidence of fatty degeneration of the cardiac muscle, may be taken as an indication for the administration of strophanthus, as an almost uniformly good result has attended its use in this class of cases. The nitro-glycerine was given with the suspicion that these pains might indicate high arterial tension, although examination of the arteries failed to reveal it.

Case II.—Hypertrophied and dilated heart: valvular disease. Edward L., age 31, was admitted August 27, with great dyspnœa and marked œdema of the feet and ankles. His heart was hypertrophied, and there were present double mitral, direct aortic, and tricuspid regurgitant murmurs. He was put on strophanthus, and the dose increased to 12 drops three times daily. With this dose he improved very decidedly, but had several severe spells of dyspnœa, for which hypodermics of strychnia were used with markedly good results. On two occasions the hypodermics were given at 11 P. M., and after them he slept well the balance of the night, although before them he had been in extreme distress. September 15, as he had been retrogressing and the effect of the strophanthus had apparently worn out, he was given sulphate of sparteine, 1 grain, three times daily, with the effect of restoring him to his condition during the best effects of the strophanthus. September 25 he was again given strophanthus with the object of ascertaining if its good effects had been restored by disuse, but he deteriorated and died rather suddenly October 4.

In this case, from the nature of the cardiac lesions and the extent to which failure of compensation had progressed, no permanent good effect could be expected, but the effects of strophanthus were as good as could have been hoped for. It illustrates, too, one of the disadvantages of this drug, that in some cases it will not have a very long continued good effect. It is to be noted that sparteine, after strophanthus had failed, restored the heart as far as possible, and that during its administration there was no loss of its effect. In this class of cases digitalis is, as a rule, the most efficacious remedy, but here for some reason there was an exception to the rule and it was worthless.

CASE III.—Dilated heart: renal disease. Francis W., age 25, was admitted June 9; great dyspnœa, feet and ankles very œdematous, and quite an amount of fluid in the abdomen. The heart was enlarged and there were present mitral and tricuspid regurgitant murmurs. He was deeply jaundiced and his stomach very irritable. He was put upon large doses of digitalis, but his condition grew worse. On the third day he was put upon strophanthus, 4 drops, three times daily, and the dose increased one drop daily. This was kept up till he was taking 7 drops, but his condition did not improve, the heart growing even more irritable and irregular. Strophanthus was stopped and digitalis resumed, but with no improvement. He was again put on strophanthus, 5 drops, three times daily, and the dose increased 2 drops daily, till he was taking 11 drops. His condition now beginning slightly to improve, the dose was still further increased till he was taking 19 drops. After a few days of this dose he was so much better that he was able to get out of bed and go about the ward in a rolling chair. Then the dose was cut down to 15 drops and continued at that. The œdema of the feet and fluid in the abdomen, eventually almost entirely disappeared. During the latter part of July his heart began again to fail and he had very troublesome spells of dyspnœa, for which he was given hypodermics of strychnia, which relieved them promptly and thoroughly. The strophanthus was increased till he was taking 20 drops three times daily, but this time the heart failed to respond and he died August 8. The autopsy showed a heart dilated to an extreme degree, with no valvular lesions, and kidneys in an advanced condition of chronic parenchymatous nephritis.

Here strophanthus produced a marked and happy effect, and the patient's death was due as much to the renal condition as to cardiac failure. It is to be noted that the good effect of strophanthus was not very decided till a dose of 19 drops had been reached. This is one of a class of cases in which strophanthus seems to give its best results,—a dilated heart with little hypertrophy, accompanied by renal disease, but without any arterial sclerosis. During the use of the smaller doses of strophanthus the irritability of the heart was apparently increased. Neither it nor digitalis produced any bad effect upon the stomach.

CASE IV.—Hypertrophied and dilated heart: atheromatous and thickened arteries: renal disease. William M., age 46, was admitted July 12, with only one prominent symptom—constant dyspnœa, much increased by any exertion. The heart was hypertrophied, and there were present aortic direct and mitral regurgitant murmurs. The arteries were hard and their tension high. He was put on digitalis in large doses. but at the end of four days, as his condition had rather been aggravated than relieved, this was changed to strophanthus, 4 drops, three times daily, increased gradually to 12 drops. Under this he improved somewhat for a while but soon fell back. A further increase of the dose of strophanthus produced no good effect, but seemed rather to bring on paroxysms of dyspnœa. Nitro-glycerine brought about no relief. Then, when he had grown desperately ill, hypodermics of sparteine, $\frac{3}{5}$ grain, were given at intervals of three hours with very decidedly beneficial results. Afterward, when the urgency of the symptoms had been abated, the sparteine was given by the mouth, at first in 1 grain then $\frac{1}{2}$ grain dose. The dyspnœa was relieved and the cardiac condition much improved under this; but he died of uræmia. The autopsy showed a dilated, hypertrophied heart, thickened atheromatous arteries, and an advanced stage of chronic parenchymatous nephritis. There was no valvular disease.

Digitalis rather aggravated the symptoms; nitro-glycerine did no good; strophanthus was of slight temporary benefit; while sparteine produced very decided improvement. In this class of cases where, with high arterial tension, nitro-glycerine has been of no use, the good effects attending the exhibition of sparteine have been decided and uniform.

Case V.—Typhoid fever: cardiac weakness. The patient at the end of the third week of a rather exceptionally severe attack of typhoid fever sank gradually into a condition bordering on collapse, the stomach being so irritable that even a small quantity of water produced emesis. On account of this great gastric irritability it was impossible to administer cardiac stimulants by the mouth, though they were imperatively demanded, and their hypodermic use was begun. After trying in vain digitalis and strophanthus, sparteine was given in $\frac{3}{5}$ grain doses, at first every three hours, then, as he rallied, three times a day. Soon his condition improved satisfactorily, the gastric irritability subsiding so that it was possible to give the sparteine by the mouth. After a few days its use was discontinued and the case went on to a satisfactory recovery.

This result of the use of sparteine illustrates one of its most valuable properties—the readiness with which it is administered hypodermically and its very distinctly good effects so administered. It seems to be where hypodermic administration is demanded and a permanent effect desired, the most valuable of all the cardiac stimulants. Thus administered, it is slower but longer continued in its action than strychnia.

In all these cases, although cardiac stimulants only have been mentioned, the treatment was by no means confined to them. The cases were placed as far as possible under the same conditions and general treatment appropriate to each case carefully carried out. The only cardiac stimulants used were digitalis, strophanthus, sparteine, strychnia, and occasionally caffeine. Others of this class, though occasionally useful, especially in functional cases, have given me such poor results when active cardiac stimulation was required in valvular disease or muscular weakness, that they have been ignored here. The results of the comparison of the values of those used may be concisely summed up as follows:

Digitalis is perfectly satisfactory in most cases when the cardiac weakness results from valvular incompetence. The possibility of its cumulative action is so remote that it should not weigh in choosing it from the others. As a rule, in the cardiac weakness attending acute or chronic general diseases, it will be as good as any of the others, with the possible exception of sparteine. In cases where there is renal disease or arterial thickening, either sparteine or strophanthus is to be preferred to it. Whenever it fails in a case where a good effect ought to be expected of it, either strophanthus or sparteine may still be of benefit and should be tried. Age seems to have no effect upon its relative efficacy.

Strophanthus in ordinary valvular disease is distinctly inferior to digitalis, and often here its use is attended with no good result whatever. Occasionally, in such a case, it is better than digitalis. When in a case of valvular disease there is distinct anginal pain it is, as a rule, better than digitalis. In cardiac weakness, complicated or brought about by renal disease, where there is dilation of the heart without any decided arterial sclerosis or high tension, it seems to be of decidedly more benefit than digitalis. There is no danger of its cumulative action, but, on the contrary, after its use for some time it rather frequently loses its effect. Where it has so lost its effect an increase of dose or a return to its use after a temporary discontinuation will not generally be attended by the good effect produced by the original dose. Its effect upon the quantity of urine is inconstant, though its general effect is to produce an increase; nor can its good effect upon the heart be gauged by such increase of urine. The dose before it produces any appreciable effect will generally be at least 10 drops, three times daily, though often as high as 20 drops. Doses even larger than this may be given with impunity.

Sparteine is second only to digitalis in ordinary valvular disease. It is better than digitalis in renal cases, and is of especial value in those renal cases where, with cardiac failure, there is arterial thickening and high tension. It is fully as good as strophanthus in any case. When in a case with great gastric irritability there is need of permanent cardiac stimulation, it is decidedly preferable to any of the others used hypodermically, which hypodermic use may be continued indefinitely. In the cardiac weakness attending various acute diseases, as, for instance, pneumonia, it is probably, from its simpler action and slight liability to disturb the stomach, a trifle to be preferred to digitalis. Its diuretic action is rather constant. The dose should not be less than $\frac{1}{4}$ grain, three times daily. It may be administered hypodermically safely in doses as large as 1 grain.

Caffeine is rather infrequently of slight temporary benefit and is to be used only when the others fail. It seems to be most useful in renal cases. Its diuretic effect is more constant than that of any of the others. It should not be given in less than 15 grain doses.

Strychnia, in its peculiar province, is without a peer. Whenever there is any sudden cardiac weakness and there is need of instantaneous stimulation, its use hypodermically is most highly satisfactory. Its usefulness is not governed absolutely by any previously existing condition of the heart, but seems to be rather greatest in cases where, owing to pulmonary engorgement, there is overloading of the right side of the heart. Its good effect is unfortunately fugacious and its administration has to be repeated at short intervals. Used internally it produces very slight results, except as an aid to the other cardiac stimulants, where it is of some value. It should be used hypodermically in doses of $\frac{1}{30}$ grain, though it may be used in doses of $\frac{1}{20}$ grain safely. The dose may be repeated in one-half hour.

I am greatly indebted to Dr. Benjamin Brooke, the resident physician in charge of my wards, for his constant attention to the patients and the painstaking care with which he has recorded their symptoms and the results of treatment.

SPECIAL WARDS FOR THE TREATMENT OF TYPHOID FEVER.

BY J. M. ANDERS, M.D.

DOUBTLESS the majority of authorities are in agreement that the exciting cause of typhoid fever is an organized germ. The various modes in which the disease is transmitted from the sick to the healthy are also in the main well understood. It arises from polluted drinking water, from infected milk, and from specifically tainted sewer and other air, to a certainty. The well known observations by Professor Pettenkofer and other continental observers, tend to establish an invariable relation between the height of the ground water and epidemic outbreaks of typhoid fever. Pettenkofer found that when "the water was at its lowest level, especially after a rapid fall succeeding an unusually high level, outbreaks of the fever occurred." Mr. Baldwin Latham[1] on the other hand has shown by his own statistics that outbreaks of typhoid fever follow periods of low ground water, and are in truth "coincident with a renewal of percolation."

It will be seen that the results of the observations of these investigators are greatly at variance. The researches of both, however, tend to support the opinion which I believe to be the correct one—that fluctuations in the ground water level, though in themselves of little moment, exercise a potent influence upon the prevalence of typhoid fever by polluting wells, to some extent streams, and forcing specifically infected ground air into dwellings.

The theory which contends for the *de novo* origin of typhoid fever has little to support it. It is on the one hand not always possible to prove that the disease is dependent on a pre-existing case. On the other hand it must be recollected that typhoid fever is sometimes so mild a disease as to be unrecognized by the patient himself, "who goes about his ordinary avocations unaware that he is spreading contagion broadcast." Again, the specific virus of typhoid fever may remain latent for long periods with partial or complete loss of virulence, its usual activity being restored under a combination of conditions which are, unfortunately, as yet, but little understood.

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[1] Louis C. Parkes, Hygiene and Public Health, p. 402.

That soiled mattresses, bed linen and clothing sometimes transmit the disease from person to person is universally conceded. This fact is also shown by the number of cases of typhoid fever occurring among laundresses. If this be true, could not the soiled linen and clothing—disseminating particulate typhoid organisms—of a typhoid fever patient occupying a bed in a general hospital, cause the disease in the occupant of an adjoining bed ill of some other affection? The notes of the case following, though not, perhaps, illustrating transmission of the disease by direct contagion will, I trust, serve to awaken renewed interest in this practical phase of a highly important question.

S. W., æt. 26, baker, was admitted to the male medical ward of the Episcopal Hospital February 10, 1890. Family history good. He had been a resident of the United States seven years. In the spring of 1889 he had an attack of some acute disease (character unknown). Present illness began three or four days prior to admission, commencing with slight chills, fever, headache and sweating. When admitted his face was somewhat cyanosed, breathing hurried, pulse rapid and full, while cough was almost constant.

Physical examination: over lower lobe of right lung there was dulness on percussion, bronchial breathing, crepitant râles on auscultation, and increased vocal resonance and vocal fremitis over the same area; left lung normal; abdominal physical signs entirely negative.

February 11, 1890: on admission (10th) temperature was 105° F.; to-day it is 105$\frac{2}{5}$°; temperature reduced by the use of antipyrin and quinia by suppository, Otherwise condition about the same.

February 13, 1890: temperature still continues high; cough and cynotic condition of face less marked; expectoration slightly rusty and somewhat purulent. Stomach intolerant of remedies, which are now given by rectal injections.

February 16, 1890: since date of last note the fever has been defervescing by lisis until this date, when the temperature is seen to have risen suddenly from 99$\frac{2}{5}$° to 104$\frac{3}{5}$°, though the physical signs show that the consolidated area continues resolving with no involvement of fresh areas. But now, for the first time, the abdomen is found quite tympanitic, with pain and gurgling on palpation in right iliac fossa. Already a few small faintly marked spots have appeared on the upper portion of the abdomen.

February 19, 1890: since time of above note patient has had several characteristic typhoidal stools; the eruption is now unmistakable (became so on the 17th), tympany continuing. Temperature high, though easily controlled by use of antifebrin, grains ii, in the evening. No expectoration, cough slight, while a few moist râles are still heard over base of right chest, but there is entire absence of all other physical signs.

February 24, 1890: has had several involuntary typhoidal stools. General condition of patient improved, though last evening's temperature was 10.3°. Absence of physical signs at base of right lung, excepting very few moist râles.

March 1, 1890: temperature below 100° for the last 3 days; right lung cleared up; abdominal signs and symptoms improving. Further convalescence was uninterrupted, and on March 20, having fully recovered, he was discharged. There was nothing in the treatment adopted worthy of special mention.

The temperature chart shows that the onset of the typhoid symptoms was abrupt, and the whole duration of the disease somewhat shorter than is usual. The temperature recorded in this case, after the fever symptoms had set in, simulated very closely that obtained in ordinary relapses, both as to mode of onset and duration.

This patient occupied bed 1, while in bed 2 was a severe case of typhoid fever, fully developed, when the subject of this report was admitted. In view of the fact that this patient was admitted suffering from croupous pneumonia, and that there were no evidences of typhoid fever manifested during the first six days after date of admission, the question naturally arises, was not the typhoid fever ascribable to direct contagion? The opponents of the contagious theory would doubtless seek to establish some sanitary defect of the institution to which to attribute the case. The water closets, drainage, water supply and other sanitary arrangements of the hospital, however, were examined into at or about the time of the occurrence of this case, by two physicians on its visiting staff, and found to be in excellent condition.[1] It cannot, with justice, be urged that the interval between the date of admission (the time of first exposure to the influence of the contagion, if the present view be correct), and the first appearance of the eruption was too brief to be compatible with the supposition that the disease was contracted within the institution.

I am aware that cases of typhoid fever are occasionally complicated quite early with pneumonia, which is then apt to mask the fever symptoms to some extent; but in the present case repeated examinations, as before intimated, failed to show any evidence of typhoid fever. Hence it is quite probable that the fever was produced by air-born contagion after entering a ward—and this notwithstanding the fact, which I desire to emphasize, that there was not the slightest apparent negligence on the part of the nurses having charge of the enteric patients. To detain the reader by attempting to adduce evidence to show that the *contagio-vivum* of this disease is sometimes air-born ought, in the present state of our knowledge, to be deemed unnecessary. Confessedly, the whole subject is surrounded with many difficulties, since the cases that occur among patients ill of other diseases or among the attendants may be due to the operation of other well known causes, which cannot, in many instances, be wholly excluded.

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[1] The water supplied to a portion of the patients was obtained from a well, but none of this was given to the case here reported.

Dr. Archibald E. Malloch,[1] of Hamilton, pertinently asks: "may not the cases which follow in succession in a home and which are generally attributed to the cause which produced the first, be due frequently to contagion?"

Of the responses to a circular letter issued by Sir William Thompson, with a view to ascertaining the opinions held by leading practitioners of Great Britain as to the contagiousness of this disease, all supported this belief. Among other noted authorities giving favorable testimony was Dr. Alex. Collie, physician to Homerton Hospital, who writes: "several of our nurses, nearly all of whom were between 20 and 30, have contracted the disease while nursing enteric patients."

The brief report of a case which occurred in a male nurse at the Episcopal Hospital, during my last term of service (1890), is here subjoined.

F. L., æt. 24, single, night nurse, was admitted to the male medical wards February 19, 1890. Family history good. Attack began three days prior to date of admission, with the symptoms following: anorexia, headache, repeated slight chills during whole of same period. As night nurse he had charge of the typhoid stools, twelve to fourteen in number, each night. It is worthy of note that before his illness began he drank no water while in hospital, always taking milk, coffee or tea, and at night soda water. He had been living very regularly before he was taken sick, slept nearly all day and felt no fatigue while on duty at night.

February 22: the eruption first noticed—a single spot; temperature 104°; abdomen markedly tympanitic, tender on pressure, with gurgling.

February 24: general condition favorable; temperature 104°, both morning and evening; eruption well marked, numbering one dozen spots.

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[1] "Contagiousness of Enteric Fever," read before the Canada Medical Association, August 5, 1874.

March 1, 1890: since date of last note, temperature ran high until this day, when it began to defervesce gradually; soon followed by an uninterrupted progress toward recovery, which was completed March 19, 1890.

Since this patient had not drank any water prior to his illness, and since, as before stated, no defects were discovered in the sanitary arrangements of the hospital, this case was in all probability caused by his coming into contact with the emanations of enteric excreta. The committee on sanitary condition of the Episcopal Hospital (*supra*), though saying nothing about the contagiousness of the disease, called attention to the fact that a total of twelve cases had developed in nurses and others while residing in the hospital.

In view of the facts previously brought forward, concerning the sanitary condition of this most excellently conducted institution, some, at least, of the cases—twelve in number—were attributable to contagion. "Perfect cleanliness," say those who do not believe in the contagious theory, "would prevent its spread from person to person in all instances;" but though this dictum be correct, this ideal state of cleanliness cannot, in a disease of so serious a nature as typhoid fever, more especially when met with in the wards of a large general hospital, be constantly maintained.

The results of some observations by Professor Virchow go to prove that the bacillus of Eberth may be transported by the atmosphere. At a recent meeting of the Berlin Medical Society, Virchow exhibited curves representing the mortality in Berlin from diphtheria and typhoid fever for the years 1883–1888. These curves showed that the epidemic of typhoid fever, which occurred in 1888, was especially active in those quarters of the city which are unprovided with water-pipes.[1]

M. Frederic Bordas,[2] as the result of a series of experiments, believes that the bacillus of typhoid fever belongs to the class known as aerobic micro-organisms. He recognizes that this bacillus remains dormant in a very dry atmosphere, and lives and multiplies in an atmosphere more or less humid. This is offered as an hypothesis of the great prevalency of typhoid in October and November, months ordinarily accompanied by great humidity. Finally, it is quite possible for the bacillus to enter the system through the respiratory organs.

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[1] Journal of the American Medical Association, May 30, 1890.

[2] Gazette Medical de Paris, March 22, 1890, quoted by Times and Register, June 14, 1890, p. 575

The following statement of the investigations by Dr. Chour shows conclusively that the infectious principle producing typhoid fever is not infrequently transmitted by the air:

> "Two regiments stationed at Jitomir, and supplied with drinking water from the same source, suffered in a very different degree from the disease. The soldiers belonging to the regiment which suffered most severely were quartered in various barracks, and it was remarked that in one particular locality the men were attacked in a far larger proportion than their fellows, who were located elsewhere. In December, 1886, the buildings were evacuated and thoroughly cleansed and disinfected, whereupon the mortality fell to 1.7 per 1000 in 1887, and to 0 in 1888. In the other barracks, which had not been thus dealt with, the mortality rose to 22 per 1000 in 1887, and to 33 per 1000 in 1888."
>
> It occurred to Dr. Chour to institute an examination of the dust from the infected barracks, and he found in it an average of fourteen million microbes per gramme, among which the typhoid bacillus was easily detected. The evacuation of the rooms and their thorough disinfection promptly put an end to the epidemic.[1]

The results of these investigations point to the fact that in our endeavors to stamp out the disease we must not neglect the necessary precautions to prevent atmospheric transmission of the typhoid bacillus. The researches by Chour establish the contagious nature of this disease, and his results enable us to account for the occurrence of such instances of the disease as I have herein reported.

It has been repeatedly shown that typhoid fever is prone to attack the members of certain families—a fact which does not establish the non-contagiousness of the disease, but, as in the case of phthisis, which is an analogous affection in this respect, serves to show that certain inherited or acquired physical states furnish a soil exactly suitable for the development and propagation of the typhoid bacillus. From the time of the establishment of the fact that the specific bacillus is found in the discharges, down to the present, practitioners have been assiduously disinfecting the stools of enteric patients, without any falling off in the total number of cases.

It seems to me this latter fact renders certain one of two things, namely: either the disinfection of the stools as it has been and is now carried out, lacks thoroughness, or something more than this single precautionary measure is demanded, to lessen the prevalence of the disease. Doubtless, the germs that unavoidably find their way from a person affected with the fever to the atmosphere of the ward or private room, thence to the walls or articles of furniture, are capable of giving rise to the disease in the attendants and other occupants so soon as the systems of these latter persons are in that condition which furnishes a suitable resting place for the typhoid germs, even though this favorable condition of the system may not obtain for a considerable period of time after the recovery of the primary case.

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[1] Medical and Surgical Reporter.

I have observed in several instances that persons who have engendered a run down condition of the system, owing to prolonged confinement, loss of needed rest while in constant attendance upon enteric patients, have proved ready victims of the disease. This latter fact goes to show that one of the essential factors to the production of the fever—a non-resistant system—is probably quite frequently wanting; and this would account for the comparatively infrequent occurrence of cases pointing to the influence of direct contagion.

An intelligent consideration of the whole question can, therefore, lead to but one deduction regarding the proper method of preventive treatment of the disease, to wit: that it must be conducted on the same principles as those governing the management of any other contagious and infectious disease. It must aim to cut off not only the chief, but every channel of communication from the sick to the healthy. How can this object be successfully accomplished? From our familiar knowledge concerning the causes of this disease, it is obviously essential that a "good public water-supply, protected in all its details against the entrance of impurities," should be secured. The house-drainage arrangements and public sewers should be properly constructed and thoroughly ventilated. Every attention should also be paid to the matter of cubic air space, *per capita*, which should not be less than 1500 cubic feet. It is plainly evident, however, that by destroying the specific disease germs, thrown off in every case during its progress, and even immediately after its close, the disease would be limited in its spread, absolutely.

In view of this fact, most authors urge the importance of thoroughly disinfecting the dejecta, for the purpose not only of destroying the specific organism, but also of arresting their further development. They also tell us that all bed-linens and articles of clothing soiled by the encreta of the patient must at once be removed and thrown into water containing an efficient disinfectant. May not the fecal stains, frequently, be so faint as to escape close inspection and yet be capable of contaminating the surrounding air, thus producing the disease by contagion; or, if accidently swallowed, of setting up the disease in others? Flint recommends daily removal of the patient's clothing where there are no contra-indications present. Doubtless, anything short of this daily change is attended with risk to the healthy; and yet, as is well known, the condition of typhoid patients may be such as to preclude so frequent a change of clothing with safety. Hence it seems to me to be clear that isolation of the typhoid patients is to be recommended. It is not here contended that special fever hospitals, for this large class of cases, are essential, but separate small wards in connection with our large general hospitals.

From the facts previously stated, it is seen to be not sufficient to merely disinfect all washable articles of clothing, bedding, etc., but quite as needful to thoroughly cleanse and disinfect the room itself, on the patient's leaving it. Fumigation should be practiced. If special small wards were provided for typhoid fever cases in our general hospitals, the plan of management here indicated would be quite practicable. Under these conditions, and under these conditions only, is it possible to carry out, to the entire satisfaction of the sanitarian, every precautionary measure known to medical science against the propagation and mischievous work of the subtle typhoid bacillus. The attention of physician and nurse must be concentrated upon the fact that the disease is both infectious and contagious, and upon the preventive measures calculated to obviate its dissemination.

Neither is this mode of treating the fever an entirely untried one. As early as 1844 fever patients (including typhoid, typhus and scarlet) were cared for in separate wards of the St. Giles Parish Workhouse, with marked success,[1] the mortality from these fevers being $1\frac{1}{2}$ per cent. "Domestic servants of the hospital were unusually healthy, not a single instance of fever having occurred amongst them. Of the nurses, however, four became the subjects of fever, and in one of them the disease proved fatal."

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[1] London Fever Hospital Report, for year ending December 31, 1844, reviewed by Lanclet April 12, 1845.

In the London Fever Hospital,[1] in 1871, eight new rooms were added to the general wards, having abundant cubic air space, lofty and well lighted, with bare floors, and the absence of unnecessary fabrics and articles of furniture. These rooms were also intended for the reception and treatment of typhoid patients.[2]

Already, in the early part of the nineteenth century, institutions for the treatment of contagious fevers, for instance: the Dispensary and Fever Hospital of Belfast, the Waterford Fever Hospital, the Whitworth Fever Hospital, the Glasgow Fever Hospital, and others, existed; but in times, unfortunately, when typhus and typhoid fevers were looked upon as one and the same affection. Despite the fact that I am unacquainted with any practical results from the plan of management herein advocated, on the one hand, the establishment of the fact that the disease obeys the laws of contagious affections, is in itself sufficient reason for its adoption on the other hand. Again, were the disease infectious, spreading from person to person through the medium of the stools only, even then the separate method of treating it, in connection with our large general hospitals, should be adopted.

Finally, isolation, such as here recommended, would also admit of the use of the dry earth system, which would be, doubtless, the best method for disposing of the typhoidal stools, thus obviating all danger from spreading the disease for long distances on account of our too commonly inefficient systems of sewage.

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[1] Until the opening of the new Pauper Fever Asylums, it has been the only institution of the kind in London.

[2] The Medical Times and Gazette, London, January 6, 1872, editorial on Private Wards at the London Fever Hospital.

1637 N. BROAD STREET.

TWO CASES ILLUSTRATING THE THERAPEUTIC USES OF THE NITRITES.

By SOLOMON SOLIS-COHEN, M.D.

THE following cases are briefly reported in illustration of the therapeutic uses of the nitrites:

CASE I.—*Large doses of nitrites in a case of angina pectoris: psychic effect of inert medication.*—Robert Gallagher, aged 63, laborer, single, native of Ireland, was admitted December 11, 1889. The following notes of his history were made by Dr. Harris, resident physician:

"He has always been a hard-working man, exposed to all vicissitudes of temperature and weather; has used alcohol in moderation, but has never lost any time from work through drink. There is no venereal history. When a child he had chicken-pox, measles, small-pox and whooping-cough; at 19 years of age, typhus fever; and at 20, typhoid fever. At 33 years, an attack of acute inflammatory rheumatism confined him to bed for a number of weeks. Between the ages of 16 and 20 he had occasional attacks of syncope, which lasted for a few minutes. There were no epileptiform convulsions and no aura. In 1862 he came to this country and remained apparently in good health until 1884, with the exception of an attack of pleurisy and the following accidents: fracture of leg in 1872; fracture of skull in 1878, and three attacks of mild sunstroke. In 1884, while walking home from his work, he was suddenly attacked with sharp, stabbing pain in the left side, over the region of the heart, accompanied with what he called 'sprinkles of pain' running up the neck. The pain quickly passed; he did not fall or lose consciousness. Shortly afterward the attack was repeated, being, however, much more severe. He felt as if his heart were being compressed between two hands, and as if he were being smothered by a weight upon his chest. There was a sense of impending dissolution. This attack also passed over quickly, but left him too weak to return to work for two days. A repetition of the attack occurred in two weeks. This time the pain ran into the left arm, giving the sensation of 'sprinkling' and numbness. Since that time, the paroxysms have been more frequent and more severe; he has been growing weaker; his appetite is failing. During nocturnal attacks he frequently loses consciousness for several minutes. There is no sensation of clutching at the throat, but the difficulty in breathing seems to be entirely in the thorax. The pain at times runs along the left shoulder and the back of the neck, terminating at the left mastoid process."

After admission to the hospital, the attacks recurred almost daily, sometimes twice or oftener in the twenty-four hours. They were of two varieties, the more severe ones being followed by syncope and lasting longer than the others, which he termed "choking spells," and which consisted of paroxysms of cardiac distress and dyspnœa.

The patient noted that there was much less tendency to attack when the stomach was comparatively empty, and after meals he had always more or less pain and discomfort, though not amounting to a paroxysm.

His mother died of some spasmodic pulmonary affection at the age of 76; his father died of apoplexy at 75; one sister died from a heart trouble like his own, so he says, and one from old age. He has one sister living in Ireland and one in Philadelphia, who have attacks similar to his own.

When I took charge of the case, January 16, 1890, physical examination showed no pulmonary lesion, no prominence of the præcordium, no thrill, no visible apex beat. Upon percussion the heart dulness appeared to be slightly less than is usually found. The first sound of the heart was rather feeble and deficient in valvular tone. The second sound was good, therefore relatively accentuated. There was no murmur. The radial arteries were rigid; the temporal arteries tortuous, plainly visible and rigid. There was a marked arcus senilis. The face was anxious and haggard.

Urinalysis repeatedly made, failed to show either albumin or sugar. Urates and phosphates were constantly in excess.

The diagnosis of angina pectoris, the result of arterio-sclerosis, seems to be beyond reasonable doubt. While there was no evidence that either the sunstrokes or fracture of the skull had given rise to permanent cerebral lesion of a nature to account for the symptoms, there was undoubtedly a strong general neurotic element in the case, so that the frequency and, in part, the severity of the attacks had been increased by fear.

The treatment which had been instituted consisted of rest in bed, regulation of diet, due attention to the secretions and excretions, inhalation of amyl nitrite at the time of attack, and the administration of one drop of the centessimal solution of nitro-glycerin three times a day. I ordered the nitro-glycerin to be increased one drop at a dose, until physiological effects were obtained. After the dose had been raised to five minims three times a day, the patient remained for four days free from an attack. The paroxysms then recurred, and seeming to be uninfluenced by further increase of the drug *per orem*, it was administered hypodermatically in doses of ten minims of the centessimal solution once, then twice, and finally three times daily. The attacks were partially controlled by this measure, so that a period of two weeks of comparative freedom was obtained before their recurrence; which, however, ensued upon the diminution of the number of hypodermatic injections to two in twenty-four hours.

Sodium nitrite was then administered internally, beginning with one-fourth of a grain and increasing the amount one-fourth of a grain at each dose, until finally a dose of five grains, three times a day, was reached. Under the administration of fifteen grains of sodium nitrite by the mouth, and forty minims of the centessimal solution of nitro-glycerin hypodermatically, in the twenty-four hours, the periods of quietude increased; though for a few days the tendency to continuous repetitions of the paroxysms during the night became so marked, following some mental disturbance, that even this active treatment had to be supplemented by the hypodermatic use of morphine with atropine at 8 o'clock, for several nights.

There having been no recurrence of paroxysms since April 16, during the last week of April the hypodermatic injections were reduced to one per diem, and the amount of sodium nitrite cautiously decreased. Improvement in the patient's condition continuing despite the mitigation of the treatment, and the hysterical element becoming more marked, it was decided to substitute for the nitrites hypodermatic injections of distilled water and pills of althea, without allowing the patient to be aware of the change. Improvement continued, so that the patient was successively able to get out of bed, to go around the ward and then the corridors in a rolling chair, and then to walk out for exercise. The hypodermatic injections were soon discontinued, but the pills were not withdrawn until some time in August, on account of the mental distress occasioned by tentative withdrawal. Sodium iodide and arsenic were then used, the indication being the condition of the arteries. In September, no recurrence having taken place, the patient was transferred to the out-wards.

The chief points of interest in this case are:

1. The large doses of the nitrites required to bring the affection under control.

2. The mental effect, when this control had been secured, of inert medication.

3. While the patient was taking his largest doses of active medicaments, the only perceptible physiological effect was a very occasional and quite transient flushing of the face.

CASE II.—*Influenza in a patient having chronic valvular disease.* (*Mitral incompetence and aortic stenosis*). *Treatment by atropine and strychnine, with amyl nitrite.*—William Hayward, aged 54, white, birth place Wales, residence Philadelphia, was admitted January 13, 1890. Ten days previously he had had slight chills, followed by slight fever. A few nights before admission he was picked up in the street unconscious. On admission he complained of pain in the left side of the chest, varying in intensity and situation. There was slight cough with scanty expectoration, which at times was tinged with blood. Temperature was 100°; pulse 100; respirations 32.

Diagnosis of catarrhal pneumonia, probably influenza, was made by the resident, Dr. Harris, who also recognized the chronic cardiac lesions to be described later. He was treated with digitalis and ammonium carbonate, a cotton jacket and turpentine stupes applied to the chest, alcohol freely administered.

This treatment was continued until the 16th, when I took charge of the wards. At that time the temperature, which had pursued an irregular course, falling as low as 96.4°, and rising as high as 102°, was 97° in the morning; the respirations were 44 and the pulse 76. The pulse and respirations had been as irregular as the temperature, the respirations varying between 28 and 56, the pulse always small and feeble, ranging between 48 and 80, though—probably under the influence of the digitalis—its usual range was below 60. There were at this time irregular areas of dull percussion over both lungs, more especially on the right; and at the right base quite a large patch corresponding probably to one-fourth of the lower lobe. The respiratory murmur was feeble throughout, and in situations corresponding with the dull percussion the auscultation signs varied from bronchial breathing, on the one hand, to absence of breath-sounds, on the other. Both crepitant and sub-crepitant râles were present in varying distribution ; the crepitant râles being principally confined to the area of apparently lobar condensation at the right base, immediately above which, pleural friction was plainly perceptible. There was no evidence at any time of effusion.

Palpation in the præcordial region showed the apex of the heart in the sixth interspace and the nipple line. Just above this a systolic thrill was easily perceptible, limited to an area of about the size of a dime. The impulse was feeble and heaving and visible in two interspaces. Percussion showed increase of cardiac dulness toward the right, reaching nearly to the right border of the sternum. At the apex, a blowing murmur. rather low-pitched, replaced the first sound of the heart ; the second sound was not audible. This murmur was transmitted into the axilla, and could be plainly heard below the posterior inferior angle of the scapula. Occasionally an indistinct murmur was heard before the systole, just above the apex. Over mid-sternum and over the aortic cartilage, a systolic murmur, harsher in quality and higher in pitch, was heard, and was transmitted into the arteries of the neck. The second sound could not be heard, but was replaced by an indistinct murmur. The differences in pitch and quality between the aortic and mitral murmurs were quite easily recognized, so that there was no difficulty in determining the coincidence of mitral incompetence and aortic obstruction with accompanying regurgitation, both evidently chronic conditions. No history of rheumatism was obtainable in explanation of this, though the patient had been a soldier and subject to much exposure. There were histories of syphilis and of gonorrhœa. The patient had been short of breath, more or less, for ten years, especially upon exertion, so that he had not been able to do much work during that period. There had never been any dropsy ; there was no albumin in the urine ; the lips were quite blue ; the face pale, pinched and anxious ; the nails blue ; the skin cold.

Diagnosis of the acute condition was influenza, combined lobar and lobular pneumonia. The digitalis was stopped and the patient placed upon atropine sulphate, $\frac{1}{120}$ of a grain, with strychnine sulphate, $\frac{1}{40}$ of a grain, every five hours ; nitrite of amyl, five drops in alcohol, by the mouth, every three hours. Ammonium carbonate was continued, ten grains being given every hour at first, afterwards at longer intervals ; and whiskey was ordered to be given according to circumstances. Hot-water cans, properly wrapped, were applied along the legs, and the cotton jacket to the chest continued.

On the 19th a deep red flush appeared upon the left cheek and spread gradually, until it involved forehead and eyelids and the margin of the nose. As there were several cases of erysipelas in the wards, there was no doubt as to the meaning of this. Strange to say, however, the temperature was not markedly influenced, varying between 97° and 99°, and continuing for the most part at about 97.6°, until the 24th, when the local manifestations of the erysipelatous process reached their height coincidentally with the development of a new area of consolidation in the left lung, which gave the characteristic percussion and auscultation signs of a basal lobar pneumonia. The local conditions in the right lung had been gradually ameliorating ; these shortly became worse. On the 25th the patient had a temperature of 100° ; respiration 52 ; pulse 76. Ten drops of tincture of chloride of iron was then given every three hours, and an ointment of ichthyol applied to the face. Atropine was increased to $\frac{1}{60}$ of a grain, and strychnine to $\frac{1}{30}$ of a grain. In place of the ammonium carbonate, half a fluid drachm of the aromatic spirits of ammonia was given every half hour, in one-half ounce of whiskey; and twenty drops of the fluid extract of coca was given every hour at a later period. The chest was actively dry cupped and counter-irritation kept up by sinapisms and poultices. On the 29th the temperature was, at 11.30 A. M., 96.2°; respirations 48; pulse 66; at 6 P. M., temperature 97.4°; respirations 52; pulse 84.

On February 5, the morning temperature was 97°; respiration 20; pulse 80. On February 8, temperature was normal. Atropine, strychnine, amyl nitrite, with alcohol according to circumstances, was now the treatment. The temperature continued to vary between 97° and the normal line, keeping usually below 98°, occasionally falling as low as 96.4°; finally, on the 29th of March, becoming and thereafter remaining normal. At this time the respirations were 18 and the pulse 72. The pulse was now regular, comparatively strong, and much fuller than it had ever been; alcohol had been discontinued. The patient continued steadily to improve in all respects, and when transferred to the Soldiers' Home was capable of a greater degree of exertion without dyspnœa, than he had been for many years.

The interest in this case, if we set aside the prolonged low temperature which was so common in cases of influenza, is almost exclusively therapeutic. The well known tendency of influenza to bring about death in cases of such marked cardiac impairment as this patient presented, led to the formulation of a gloomy prognosis; and the patient's condition during the height of his pneumonia, and again when the smouldering embers of the pneumonia were relighted by the erysipelas, was such as to justify the gravest apprehensions. Antipyretic medication was evidently counter-indicated, but had any of the coal-tar compounds been administered for the relief of pain, as was so common, and, I believe, so unfortunate a practice throughout Europe and America during the prevalence of the pandemic, doubtless the result would have been in accordance with our fears.

Again, upon first sight, the cardiac conditions would have seemed to emphasize the indication for digitalis presented by the pneumonia. When the case came under my care, however, it was quite evident that digitalis had been of no avail, while the interpretation of the physical conditions—including among these the great disproportion between pulse rate and respiration—which seemed to me most obvious, was a direct counter-indication to its employment. Both right ventricle and left ventricle were enlarged, but during the acute attack it was impossible to determine whether hypertrophy had kept pace with dilatation. The valvular conditions had largely to determine the choice of therapeutic agents. With the current of blood obstructed at its entrance into the aorta, and with an incompetent mitral valve permitting regurgitation into the auricle at the moment of systole, it seemed evident that the most pressing necessity was to hurry the cardiac rhythm, so as to diminish the time and pressure of mitral leakage.

Prolongation of the diastole must have been futile so long as the aortic obstruction prevented the increased quantity of blood, which might accumulate in the ventricle during the prolonged diastole, from finding its way out, except backward through the incompetent mitral, through the auricle and pulmonary veins, into the pulmonic circulation; there to increase pulmonary congestion and, therefore, the difficulty of breathing. It is true that a strengthening of the muscular contraction, within limits, was also of prime importance; but the considerations just mentioned indicated that digitalis was not the proper agent by which to secure this strength, while its effect in heightening systemic blood pressure was an additional reason against its use. Atropine and strychnine were therefore chosen, while nitrite of amyl was given in order to diminish the load placed upon the heart, by lowering the blood pressure; in this way partially compensating for aortic obstruction. Amyl nitrite was chosen in preference to other nitrites by reason of the greater rapidity and greater fugacity of its effect, thus permitting a better control. Its internal use is new in this country, though long practiced in England by B. W. Richardson.

The result of treatment in this case seems to have proved the correctness of the theories upon which it was based.

Extraordinary tolerance of nitrites is occasionally encountered, but I have never met with a case so rebellious to their influence as the case of angina here reported; nor, on the other hand, have I ever seen a more striking manifestation of their power for relief of this condition when once the proper dosage had been reached. Attention should also be called to the hypodermatic method of administration, which, if carefully conducted, involves little risk of local trouble.

These two cases illustrate very well the applicability of the nitrites to two methods of restoring equilibrium of circulation. As the proper balance of function constitutes health, the aim of the therapeutist must be to re-establish that balance in the most feasible manner, and with the least alteration of functions other than those implicated in the existing disturbance. Broadly speaking, he must choose between two methods: first, the direct method, that of elevating a depressed function, or depressing an unduly exalted function, to the normal level; second, the indirect method, that of depressing or elevating a normal function to the abnormal level of a disturbed function with which it may be correllated. As the first case illustrates the direct method, *depression of abnormally exalted functions,* so the second case illustrates the indirect method, *compensatory depression of normal function..*

It is to the insistence of Bartholow upon the utility of lowering peripheral arterial tension by the use of the nitrites in cases of impaired cardiac vigor, that the medical profession in America owes the knowledge which gives power to accomplish results that to the lay observer seem hardly short of miraculous.

DELIRIUM TREMENS—CONTUSION OF EYE—ABSCESS AND DESTRUCTION OF EYE—SEPTIC PNEUMONIA—ABSCESS OF LUNG—EXPLORATORY PUNCTURE—NEGATIVE RESULTS—EXCISION OF RIBS—DRAINAGE OF ABSCESS CAVITY—RECOVERY.

BY WILLIAM G. PORTER, M.D.

E. McNamara, æt. 33, unmarried, white, native of Philadelphia, by occupation an upholsterer, admitted to the drunk ward of the Philadelphia Hospital October 1, 1888, at the termination of a spree, suffering from delirium tremens and a severe contusion of the eye. In the course of a few days he was transferred to the medical ward on account of high fever and chest symptoms, under the care of the late Dr. Bruen. The eye did badly, suppuration and destruction of the globe resulting.

Upon admission to the medical ward the patient was found to be suffering from pneumonia of the lower lobe of the right lung, without marked signs of consolidation. There was grave constitutional disturbance and a marked tendency to sweating; temperature irregularly remittent, not exceeding 103° F. The physical signs were somewhat obscure, there being, however, an extensive area of impaired resonance over the lower lobe af the right lung, with diffuse coarse mucous râles on both sides of the chest. The sputum was muco-purulent, never rusty. In the course of two weeks the expectorated matter became highly offensive, and the patient's breath had a markedly fetid odor. So great was the fetor, notwithstanding the use of antiseptic sprays, that it was difficult for those in charge to minister to the requirements of the patient at his bedside.

A few days later signs of a cavity showed themselves in the antero-lateral region at the base of the right chest. At this time microscopical examination of the sputum revealed the presence of elastic tissue. The general condition of the patient was unsatisfactory, appetite poor; continuing fever and profuse sweating were noted. There was also a great increase of fetid expectoration.

At the request of Dr. Bruen, I exposed the pleura at the base of the chest anteriorly, by an incision in the fourth intercostal space, just outside of the mammillary line. Exploratory punctures were made into the lung in several directions with a moderate sized trocar and canula. While the instrument apparently entered a cavity, no pus or fetid gas escaped. The patient's condition being critical, the operation was discontinued.

The patient's condition remained unchanged; the temperature now ranged from $98\frac{2}{5}$° to 100° F. Expectoration, fetor, and asthenia continued, as before.

The ward was transferred to the care of Dr. J. C. Wilson, November 1.

The physical signs indicated extensive abscess in the lower lobe of the right lung. I again saw the case, and after consultation it was determined to freely open the chest wall and drain the cavity. This operation was performed in the amphitheatre of the hospital on November 17, 1888. Portions of the fourth, fifth and sixth ribs, about two and a half inches in length, were removed in the infra-axillary region, and an opening made into the cavity of the abscess.

It is proper to state that, in the course of the operation, in enlarging the incision downwards, the diaphragm was perforated and an opening made to communicate with the cavity of the peritoneum. The incision through the diaphragm and peritoneum was immediately closed by a tense catgut suture, and the accident in no manner interfered with the subsequent favorable course of the case.

At the time of the operation there was no large discharge of pus. A large rubber drainage tube was introduced into the cavity for a distance of about five inches. The cavity was thoroughly washed out with antiseptic solutions, and an antiseptic dressing was applied. The patient's condition at the time of the second operation was extremely discouraging; in fact, he appeared to be practically moribund. There was a slight rise of temperature to $101\frac{1}{5}$° F. after the operation; it fluctuated between 99° and 100° F. for a week, when it became normal.

The cavity was washed out with a solution of potassium permanganate. The fetor disappeared within a few days after the operation. The drainage tube was finally removed about the first of February. The patient was discharged March 26, 1889, perfectly restored to health, with no cough, no expectoration, and gain in weight.

THE OPERATIVE TREATMENT OF STRICTURE OF THE MALE URETHRA.

BY JOHN B. DEAVER, M.D.

IN contributing my share of the material of which this volume of reports is composed, I feel that I cannot do better than write on the subject of operative treatment of strictures of the male urethra; conscious of the fact that although the subject is a very old one, it is one about which there is a great diversity of opinion among surgeons.

The surgical and venereal wards of the Philadelphia Hospital constantly present a large number of cases of stricture of the urethra, and ample opportunity is afforded the members of the surgical staff for close observation of this very interesting class of surgical affections.

Strictures may be classified as follows:

1. Annular.
2. Linear.
3. Irritable.
4. Resilient.
5. Strictures of large calibre.
6. Strictures of small calibre.

Strictures are also classified as permeable and impermeable; permeable when an instrument can be passed through the stricture, and impermeable when the stricture will not permit of the passage of an instrument, be it ever so small.

Location.—The particular portion of the urethra in which strictures are most commonly located is disputed by many authors. Sir Henry Thompson, Treves, and Keys believe that two-thirds of all strictures are situated beneath the pubic arch, or at the bulbo-membranous junction. Professor Fessenden N. Otis has met with the greatest number of strictures about one-quarter of an inch beyond the meatus urinarius. My experience has been that the majority of strictures are to be found in the middle portion of the pendulous urethra.

The operative treatment of strictures of the male urethra embraces the following methods:—

Gradual dilatation.
Continuous dilatation.
Rapid dilatation or divulsion.
Electrolysis.
Internal urethrotomy.
External urethrotomy.
Internal and external urethrotomy.
Perineal section.

The operations for stricture of the male urethra having for their object a radical cure, in my judgment, are gradual dilatation (only practiced as a preliminary procedure to dilating internal urethrotomy), dilating internal urethrotomy, external urethrotomy, perineal section, or a combination of either of these two procedures with internal urethrotomy, and in a very few cases, concerning which mention will be made later on, supra-pubic drainage as a preliminary to perineal section or external urethrotomy.

Before resorting to any operation for stricture it is important to make a careful examination of the urine; this I believe should be done, in fact, before making the examination necessary to establish the diagnosis. This is not always practicable, and seldom done, except where opportunity is afforded for preparatory treatment. For a long time I have been in the habit of instilling into the urethra, both before making the necessary examination and when doing many internal urethrotomies, a 4 per cent. solution of cocaine. I believe this to be a harmless drug if used cautiously.

In deciding upon the operative treatment to be pursued in any given case, I first determine the position, the variety and the number of strictures; and secondly, their calibre; this latter being accurately as well as conveniently accomplished by means of the urethral metre. All strictures of large calibre, by which I mean those of twenty millimetres and over in circumference, when situated not deeper than four and a half inches beyond the meatus urinarius in an average penis, and five inches in the unusually large penis, are cases for dilating internal urethrotomy.

Strictures impermeable to the passage of instruments (filiform bougies, etc.,) are cases for external urethrotomy or perineal section, depending upon their location. Strictures of small calibre, which cannot be dilated to twenty millimetres by gradual dilatation, and situated within four and a half inches of the meatus urinarius in the average penis, and five inches in the unusually large penis, are cases for internal urethrotomy, first using Maisonneuve's urethrotome, with which the stricture or strictures are cut to twenty millimetres, after which, by means of the dilating urethrotome, the calibre of the urethra is easily restored.

The first four varieties of treatment made mention of in this paper, namely: gradual dilatation, continuous dilatation, rapid dilatation or divulsion, and electrolysis, I will describe seriatim, giving my objections to them and the reasons for the same.

Gradual dilatation.—This is accomplished by conical steel sounds and flexible bougies. Gradual dilatation by means of conical steel sounds, is the form of treatment most commonly employed by the majority of surgeons. The reasons for the popularity of this method are not very apparent, but it is to be hoped that they may be found in the fact that their patients will not submit to the more radical urethrotomy, which, beyond any question of doubt, offers the only means of cure in the greater number of cases. The advocates of gradual dilatation claim that they cure strictures by this method, and I have no doubt this is true in the small minority of cases; but at what a fearful expense of time and complaint on the part of their patients. I grant that gradual dilatation will temporarily relieve a stricture; but as to curing it, I am forced to say this is a result not to be expected, much less looked for, except perhaps, in very recent strictures before organization has taken place. These are so seldom seen before this process is complete, not having been the occasion of sufficient trouble to prompt the patient to seek the advice of a surgeon; therefore, they can practically be dismissed. With this form of treatment the bougie becomes the patient's constant companion, not for a short time, but for life.

How common it is for a patient to be prescribed a bougie, and with one or two lessons taught how to use it and advised to introduce it once every week, or perhaps every other week; this, to say nothing of the ill effects accruing from this treatment, is quite sufficient to condemn it. How often epididymitis, cystitis, abscess of the prostate gland, and prostatorrhœa are met with, resulting from the passage of the bougie, both in the hands of the surgeon and of the patient. I have never seen any of these troubles follow an internal or external urethrotomy when properly done. We will admit that in nearly all cases of stricture treated by gradual dilatation, whether the stricture be situated in the pendulous urethra or deeper, the bougie is passed into the bladder; in fact, the instrument is forced into the urethra up to its hilt by depressing the handle well between the thighs, and even this is not spoken of as dangerous treatment when compared with urethrotomy. The immediate danger of this method of treatment I am very certain is of considerable moment, while that of urethrotomy is *nil*.

With patients who will not submit to internal urethrotomy, I use for the purpose of gradual dilatation, a sound much shorter than the ordinary steel sound and slightly curved; one that when passed up to the hilt into the urethra of an average penis cannot enter the bladder, but simply the membranous urethra. This instrument, I regret to say, is not usually sold by our instrument makers, preference being given the long and well curved sounds.

In this day of advancement, when it is the aim and ambition of every progressive surgeon to safely accomplish in the shortest possible time, that which heretofore could not be done in a very long time, I do not understand why this treatment is proclaimed to be superior to internal urethrotomy done with the dilating urethrotome. Many of the operators who still cling to the sound (bougie) as the *alpha and omega* in the treatment of strictures, for other conditions do not hesitate to most heartily endorse operative procedures, to which are attached great risk, and concerning the propriety of which there may be grave doubts.

There is no doubt that with a very small conical steel sound, unless the greatest care be observed when attempting to traverse a tight stricture, there is danger of making a false passage, this being more likely to occur when the stricture is located in the pendulous than in the deep urethra. To some this may seem an adverse statement, but when we recall the fact that the surgeon has better command of the deep than of the pendulous urethra, owing to the relation it bears to the anterior wall of the rectum;

and with the index fiinger introduced into the rectum for the purpose of a director, it can be positively determined whether or not the sound is following the proper course. I am always able to accomplish more with the conical steel sound than with the soft bougie. If, from the history and examination of a case, I suspect the existence of a false passage, I make a urethroscopic examination, when with a probe, I am able to determine this positively. It may be very difficult to find the orifice of the false passage, owing to the presence of blood; this can be overcome by swabbing the urethra with styptic cotton.

Continuous dilatation.—Continuous dilatation is where a filiform bougie or a small catheter, if the stricture will admit it, is introduced into the bladder and allowed to remain for some time—generally two or three days—when this is replaced by others of larger size, until the stricture can be disposed of according to the operator's preference. This treatment is always followed by a strong tendency to recontraction, to say nothing of its provoking suppuration and often ulceration of the walls of the urethra; certainly three strong objections to its employment.

In the case of a tight stricture of the deep urethra (causing retention of urine), in a subject well advanced in years, and having every appearance of bladder and kidney disease, I have seen the urethra loaded with filiform bougies, and after persevering for some time the surgeon has succeeded in passing one through the stricture, allowing it to remain, congratulating himself upon the feat performed. Sufficient relief to the distended bladder being thus afforded until the stricture can be dilated to admit the smallest sized catheter, when a size larger is introduced and so on, until the stricture will admit of a medium sized conical steel sound or the flexible bougie, as is the surgeon's preference. After this point has been reached the case is disposed of by gradual dilatation. By this treatment it is a question how long it will be before the bladder is completely emptied, to say nothing of the evil effects of the prolonged retention.

These are cases in which I always practice and teach that external urethrotomy should be done, thus fulfiling every indication—that of relieving the retention, dividing the stricture, and draining the bladder; all of which are urgently called for, but especially so in the event of existing organic trouble beyond the urethra.

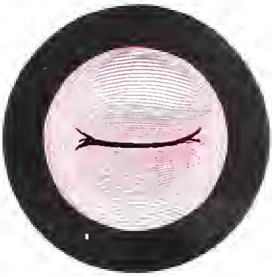
Rapid dilatation or divulsion.—Rapid dilatation or divulsion is accomplished by dilating the stricture with conical steel sounds, or by using Holt's instrument—"a relic of barbaric surgery," or by the Thompson divulsor or some other like instrument, to accomplish a similar purpose, until the urethral calibre is supposed to be restored; that is, approximately so, no accurate measurement having been taken to determine this.

The treatment by rapid dilatation and divulsion I do not approve of, as by either means we must necessarily cause a lacerated wound, the latter being much less safe than an incised wound, like that made in the operation of internal urethrotomy. In operations upon the surface of the body we are careful to have our cutting instruments in such condition as not to do faulty work, knowing how union is interfered with when the edges of the wound are in any way contused or lacerated; why, then, should we adopt an opposite course when doing a plastic operation upon the urethra, to say nothing of opening up more than one channel into which the urine may find its way by infiltration, thus exposing the patient to an unwarrantable risk?

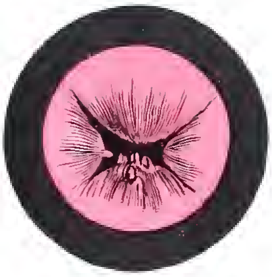
For one who still believes the above means of treating strictures of the urethra preferable, safer and therefore more surgical than internal urethrotomy, to convince him he is wrong, I would ask that he make a urethroscopic examination with the incandescent lamp urethroscope (Leiter), of the portion of the urethra operated upon; when I am confident that this alone would forever disabuse his mind of the fallacy he has been laboring under, to say nothing of the sequelæ of the divulsion treatment.

In a paper on "The Value of the Leiter Incandescent Lamp Urethroscope in the Treatment and Diagnosis of Chronic Urethral Discharges," which I had the honor of reading before the surgical section of the American Medical Association at Nashville, Tennessee, May, 1890, and published in the *Philadelphia Medical News* of June 21, 1890, I called attention to the disadvantage of this procedure, illustrating my remarks by diagrams, which showed tabs of the torn mucous membrane of the urethra.

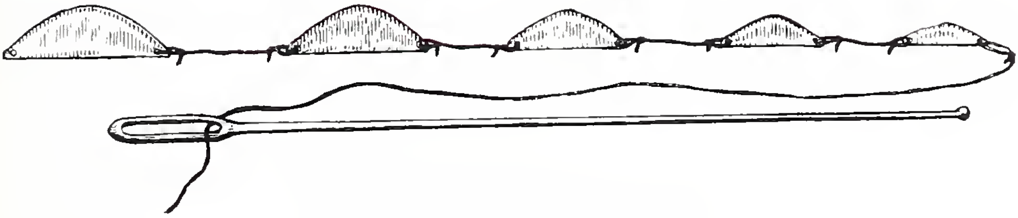
The only circumstances under which I practice rapid dilatation or divulsion (but never carried to the extent of restoring the urethra at the seat of the structure to its normal calibre), are when called to see a patient with a stricture, single or multiple, of small calibre, seated in either the pendulous or deep urethra,



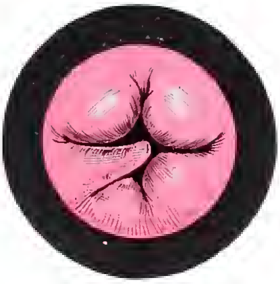
Normal Urethra.



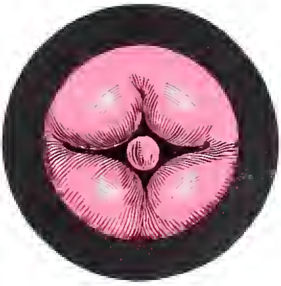
Multiple Projections of Mucous Membrane into the Urethra.



Separated Knives and Eyed Probe.



Teat-like Projection of Mucous Membrane—Showing Base.



Same—Endoscope Slightly Withdrawn. Point of Projection in the Centre.

causing retention of urine, and where a cutting operation is positively refused, Here I introduce the small sized Thomson's divulsor, if the stricture or strictures will admit of it, and stretch it to thirty millimetres. Not being able to engage the divulsor at once, I introduce a filiform bougie, and over this pass the divulsor. Immediately after the divulsor a No. 20 soft catheter rendered aseptic, is passed into the bladder and retained for forty-eight hours. The bladder is washed out through the retained catheter with either boracic acid solution or a solution of bichloride of mercury, 1 to 15,000, two or three times a day, depending upon the amount of cystitis present. The retention of a catheter in cases like the above I consider imperative.

Electrolysis.—Electrolysis is carried out by means of an urethral electrode engaged in the stricture, through which instrument the current is brought into immediate contact with the inflammatory tissue.

With electrolysis I have not, as yet, had any experience, but I would class it under the head of gradual dilatation, offering the same objections to it, namely, the length of time the treatment must be instituted ; the same tendency as after gradual dilatation to be followed by recontraction ; and lastly, what I consider very objectionable to this treatment, the great likelihood of complications arising during the course of the same, as epididymitis, spongio-corporitis (traumatic), and reflex troubles of the prostate, bladder, etc., any or all of which may be excited by the treatment.

Dilating internal urethrotomy.—The text of my argument in favor of dilating internal urethrotomy is, that division of a stricture, where we can regulate the amount, position and direction of the incision, all of which can be done, and done alone with the dilating urethrotome, is ideally and practically the best.

The treatment by dilating internal urethrotomy is carried out in the following manner:

The preparatory treatment consists in an examination of the urine, both chemically and microscopically, when, if the case be a suitable one for operation, the internal administration of boracic acid, 10 grains, is given four times daily ; attention to the bowels, a laxative being given if necessary ; irrigation of the urethra with a 1 to 15,000 solution of bichloride of mercury three times daily ; this to be instituted and pursued for four days previous to the operation.

The technique of the operation is described in the report of the cases. The after treatment consists in the internal administration of boracic acid and two grains of bisulphate of quinine four times daily for three or four days. Urethral injections of either boracic acid, 5 grains, to 1 ounce of distilled water, or solution of bichloride of mercury, 1 to 15,000, for one week, when, if there is still present some discharge, the urethra is examined urethroscopically and treatment directed according to the indications. The passage of a bougie of the calibre of the urethra at intervals of four days is continued for four weeks.

The complications of internal urethrotomy usually described are hemorrhage, extravasation of urine, urethral fever, spongiocorporitis, and abscess of the prostate. If the rules relative to the distance from the meatus in the division of strictures by internal urethrotomy be closely observed, and the retention of a full-sized aseptic soft rubber catheter in the bladder for twenty-four hours after the operation, and the division made with the dilating urethrotome, hemorrhage to any extent should not occur.

The superiority of the dilating urethrotome over Civale's instrument, the one so largely used, and over all others of this class, a point which will be referred to later on, lies in the exactness with which the incision is made, and the depth of the incision governed owing to the strictured tissue being rendered tense (thinned out) by dilating it prior to cutting. By confining the incision to the strictured portion of the urethra, coupled with the introduction of the soft catheter, the likelihood of extravasation is prevented.

If the precautions are taken as advised, to secure thorough asepsis, urethral fever will not occur. Curvature of the penis, to a slight extent, will follow this operation in a small number of cases, I care not how carefully the operation is done. In this connection I can do no better than refer to the second series of cases, numbering 186, reported by Prof. F. N. Otis, where incurvation of penis occurred as follows:

Slight, and lasting for a short time only	3
Slight, and lasting for one and a half months	1
Slight, lasting four months	1
Slight, lasting one year	1
Total	6

The treatment that will be found most satisfactory in this complication is massage and the local use of an ointment of mercury and belladonna. By retaining the soft catheter for twenty-four hours following the operation, retention is less liable to occur than if the urine be drawn. Spongio-corporitis I have never had follow the operation, and I believe when it does occur, it is the result of faulty antisepsis. By confining the bougie, passed for the purpose of preventing recontraction, to the pendulous urethra, and the observance of strict asepsis, abscess of the prostate gland will not be met with.

The advantages of the dilating urethrotome over all other instruments designed for the internal division of strictures of large calibre of the pendulous urethra, are as follows:—

1. The adaptability to accommodate itself to a stricture of the size between twenty and forty millimetres.

2. The exactness with which the stricture can be located and divided.

3. The facility with which the stricture is rendered tense, and consequently a small incision required for its division.

4. The ability, without any question of doubt, to divide all strictured bands; the latter qualification, particularly, not being possessed by any other instrument.

The dilating urethrotome, with its adaptability to any stricture of the calibre between twenty and forty, holds the same relation to other instruments as does the urethrameter to bulbous bougies, *i. e.*, that the urethrameter will accomplish what will otherwise require a series of twenty-two bulbous bougies, and, in fact, much more. In addition to being able to locate accurately a stricture in the pendulous urethra of the calibre of eighteen millimetres and above, with the urethrameter, we are also able to measure its calibre as well as its length, and by this means determine the length and depth of the incision required to divide it.

I would not advise internal urethrotomy in the case of a stricture of large calibre in a patient the subject of a hemorrhagic diathesis, of advanced kidney disease, or in one advanced in life. In the case of a stricture of small calibre, where either of the above conditions are present, I do not think it prudent to adopt radical operative means, unless the stricture is the source of much trouble.

If the patient is of a bleeding family, I would simply practice gradual dilatation, but otherwise would divide the stricture under cocaine, believing this to be preferable under the above circumstances to the administration of an anæsthetic.

Strictures of small calibre in the pendulous urethra, which cannot be dilated to admit the Otis urethrotome, but which will admit the filiform bougie of Maisonneuve's urethrotome, can be divided by this instrument, thus allowing the passage of the dilating urethrotome, when they can be disposed of as an ordinary stricture of large calibre. This I find safe, and much more acceptable to the patient than an external urethrotomy.

In all strictures of large calibre, whether made such by preparatory urethrotomy with Maisonneuve's urethrotome or not, and situated not deeper than four and one-half inches from the meatus in the average penis, and five inches in the unusually large penis, I believe dilating internal urethrotomy to be not only the surest and the most speedy way of treating the same, but the only way that offers the patient a means of permanent cure.

The operation of perineal section and external urethrotomy can be done in one of several ways, the technique of which depends upon the permeability of the stricture to the passage of an instrument. When the stricture will admit, it is the custom with many surgeons to introduce a guide (Gouley, Symes staff, or if these be too large, a filiform bougie), in this way facilitating the operation. Should this not be feasible, a medium-sized staff or conical steel sound is passed down to the face of the stricture, and the urethra opened by cutting down upon the point of the instrument as the guide. The stricture is then divided from before backward.

The operation for impermeable stricture, very popular with many English surgeons, is that devised by Mr. Wheelhouse. I have never had occasion to do this, having perfect faith in my own procedure, believing that a clean dissection and exposure of the tissues are all that is required. The operation by dissection requires but few instruments, therefore simplifying it as compared with the Wheelhouse and others. My method of performing perineal section and external urethrotomy for stricture is without the aid of a guide, to expose the urethra behind the stricture by a careful dissection, after which it is opened and the stricture divided from behind forward. This is undoubtedly a safer method, there being no question about finding the urethra, if we are perfectly familiar with the anatomy of the part operated upon, than to cut down, being guided by so small an instrument as a Gouley, Symes staff, or a filiform bougie, supposed to be engaged in the stricture, but as likely to be in a false passage. Is not the recognition of the tissues a more reliable guide? Exceptions may be taken to the above when the perineum is extensively infiltrated with urine.

I recall a case of traumatic stricture of the membranous urethra occasioned by a fracture of the ramus of the ischium, upon which I operated in the University Hospital two years ago. I found in this case the urethra displaced towards the injured side, and am sure that my success in locating it depended upon the fact that a careful dissection was made. This case made a speedy recovery, not having had a bad symptom.

The urethra being opened and the stricture divided, a soft catheter is introduced into the bladder through the urethrotomy wound and retained. A drainage tube, full size, is passed through the urethra to the urethrotomy wound, where it is brought out; this, with the catheter in the bladder, is allowed to remain four days. By means of the catheter and the drainage tube, both bladder and urethra are kept aseptic by frequent and thorough irrigation with a solution of bichloride of mercury, 1 to 15,000. After the removal of the catheter and the drainage tube, the treatment consists in passing a conical steel bougie of the calibre of the urethra, through the meatus and beyond the stricture, every third day until repair is complete.

The terms "perineal section" and "external urethrotomy" have distinct meanings. The former referring to a section of the urethra made from without and posterior to the perineo-scrotal junction; the latter to a section of the urethra anterior to this point. The only complication of any moment in a perineal section or external urethrotomy is hemorrhage, which I believe is less likely to occur when the operation is done by dissection; this method enabling the operator to see and tie all bleeding points. In the event that the bleeding continues after the operation is completed and the patient put to bed, it can in the majority of cases be controlled by packing; yet I recall one case where there was internal bleeding (into the pelvis), notwithstanding the above precautions were taken.

What is the explanation of blood finding its way into the pelvis? So long as the membranous urethra is not trespassed upon there is no danger of bleeding taking place into the pelvis, blood being prevented from finding its way there by the attachment of the anterior layer of the triangular ligament (deep perineal fascia). When the space between the anterior and the posterior layers of the triangular ligament is opened up, as must of necessity be done when dividing a stricture of the membranous urethra, a communication is established between the muscles (levator ani, coccygeus and pyriformis), forming the floor of the pelvis, and the pelvic fascia, the latter being continuous with the posterior layer of the triangular ligament (deep perineal fascia). The case above referred to was one of stricture of the bulbo-membranous junction, for which I did a perineal section some years since, and where hemorrhage took place in the pelvis, forming a blood-clot most pronounced in front of the bladder; the clot underwent suppuration, causing septicæmia, from which the patient did not recover for three months.

CASE I.—*Internal urethrotomy.*—J. H., white, age 32, was admitted to the male venereal wards of the Philadelphia Hospital, complaining of difficult micturition. Gave history of several attacks of gonorrhœa. The stream of urine passed was small, and there was a gleety discharge. Examination of the urine was negative. A No. 20 F. conical steel bougie could be passed with some difficulty, occasioning patient considerable pain.

Examination of the urethra with the urethrameter showed its calibre to be forty millimetres, calibre of the meatus twenty-eight millimetres, and the presence of three strictures, respectively: three-quarters, two and a half, and three inches posterior to the meatus. The patient having given his consent to an operation, 10 grains of boric acid, three times daily, were given internally for five days previous to the operation.

On October 4, 1889, he was brought before the clinic, and 10 grains of quinine were administered before etherization. The first procedure was the restoration of the meatus to the calibre of forty millimetres. Having located the anterior stricture, I then passed the Otis dilating urethrotome, so as to engage it, and dilated it until it met with resistance. The concealed blade was then drawn through the stricture. After division, was able to expand the blade up to forty millimetres, the normal calibre of the urethra. This procedure was repeated with each of the remaining strictures in turn. Having divided these, I then introduced the urethrameter down to the bulbo-membranous junction, when it was expanded to forty millimetres, and easily withdrawn, all obstructive points having been divided. The urethra was washed out with a 1 to 15,000 solution of bichloride, a soft catheter introduced into the bladder, which was allowed to remain for twenty-four hours. Before removal from the operating table a one grain opium suppository was introduced. His recovery was uninterrupted, the temperature at no time reaching 99°. A No. 40 F. bougie was passed every fourth day for four weeks, when, there being no longer any discharge, the patient was discharged cured.

CASE II.—*Internal urethrotomy.*—S. S., transferred from the nervous to the surgical wards of the Philadelphia Hospital on September 16, 1887, with the diagnosis of stricture. Had gonorrhœa fifteen years ago. For the last three years noticed his stream decreasing in size. When admitted to the nervous ward a No. 15 F. bougie could be passed with difficulty. When referred to the surgical ward his urethra was gradually dilated, until a No. 21 F. bougie could be introduced.

Measurements.—Circumference of penis, three and three-quarter inches; calibre of urethra, thirty-five millimetres; of meatus, twenty-three millimetres; of stricture, twenty-one millimetres, depth three inches from the meatus. He was prepared by the routine administration of boric acid internally, 10 grains, three times daily. Previous to the operation 10 grains of quinine sulph. and $\frac{1}{5}$ grain of morphine sulph. were given.

Operation September 25.—Stricture cut as in case 1. Temperature before operation 99.4° F.; after operation, evening, 98.8° F.

The night following the operation the patient removed the catheter; his temperature rose to 101.4°; catheter was re-introduced under antiseptic precautions; quinine was administered. After this his temperature dropped to 101°, and on the morning of September 26 was 98.6°. On the evening of the 26th the catheter was again removed by the patient, his temperature rising to 101.4°; was treated as on former occasions. After this no difficulty was experienced. One month after the operation a No. 36 F. bougie could be passed with perfect ease.

CASE III.—*Internal urethrotomy.*—S. T., white, age 47, a hemiplegic, was transferred from nervous to surgical ward of the Philadelphia Hospital for urethral treatment. The examination as follows: circumference of penis, three and a half inches; calibre of urethra, thirty-four millimetres; of meatus, thirty millimetres. One stricture was found three inches from the meatus. The patient had some difficulty in urinating; complained of reflex symptoms, which were thought to be due to the condition of the urethra. The patient having been prepared as in case 1, and the stricture and meatus divided in the same manner, a No. 34 F. sound was passed through the stricture without any difficulty. A catheter was passed into the bladder and secured. An opium suppository introduced into the rectum and patient returned to bed. Same after treatment given as in the two previous cases. Four weeks after the operation recovery complete.

CASE IV.—*Interno-external urethrotomy.*—J. W., age 42, white, was admitted into the venereal ward of the Philadelphia Hospital suffering from periodical attacks of retention of urine, with a history of having had several attacks of gonorrhœa, and a stricture. Had external urethrotomy performed some time since; the wound was entirely healed at time of entrance into the hospital. On examining the case a cicatrix was found in the perineum, corresponding to the site of the former operation.

Measurements.—Circumference of penis, three and a half inches. Examination by the urethrameter gave a urethral calibre of thirty-three millimetres; meatus, twenty-eight millimetres; and the presence of two strictures in the pendulous uretera, situated two and a quarter and four inches posterior to the meatus, of the calibre of twenty-eight and twenty-six millimetres respectively. The calibre of the stricture in the deep urethra was not measured.

I explained the condition of affairs to the patient and advised radical treatment, to which he gave his consent. An examination of the urine was negative. Boric acid was given internally for four days previous to the operation. The patient received 10 grains of quinine prior to the administration of ether. The strictures in the pendulous urethra were disposed of as in cases I, II and III. I then divided the stricture in the deep urethra by perineal section. The incision began at the junction of the scrotum and perineum, was continued backward about two inches, taking as my guide the perineal raphe, going through the cicatricial tissue resulting from the former operation. I found the landmarks in this case entirely obliterated, the perineum being infiltrated by the products of inflammation. Cutting through the cicatricial tissue, being careful not to deviate from the median line, I readily exposed the urethra behind the stricture, which was opened and the stricture divided. An ordinary aseptic drainage tube was passed through the pendulous urethra and brought out at the perineal wound. A catheter was introduced into the bladder from the perineal wound and held in position by a suture ; the pendulous urethra and bladder were flushed with a 1 to 15,000 bichloride solution ; the free ends of the drainage tube were fastened together with a safety pin. Iodoform was freely used in the perineal wound, which was then packed with iodoform gauze, an opium suppository introduced into the rectum, and an antiseptic dressing applied ; patient returned to bed. The packing was allowed to remain for three days ; when removed, the wound was free from pus and aseptic, the urethra and bladder were irrigated, and the drainage tube and catheter removed ; a No. 33 F. bougie was passed. This was repeated every third day for six weeks, by which time the wound in the perineum was entirely healed, the drainage tube and catheter remaining in only three days. The patient left the institution cured.

Case V.—*External urethrotomy.*—W. J., age 17, white, was admitted to the surgical ward of the Philadelphia Hospital suffering from retention of urine. Gave a history of having fallen astride a rail when thirteen years of age. On entrance to the hospital an attempt to pass a catheter by my resident failed ; neither was he able to pass a filiform bougie. Failing myself to pass an instrument, I had the patient etherized. Under the influence of the anæsthetic I succeeded in passing a No. 12 conical steel bougie, French scale. As the patient desired permanent relief, and the stricture (traumatic) was situated in the deep urethra, I performed perineal section. An incision, beginning at the junction of the scrotum with the perineum, was carried back in the median line or the perineal raphe for two and a half inches, when by a careful dissection through the deep structures, the urethra, which was infiltrated to a considerable extent with inflammatory material, was exposed. A small opening was now made in the urethra, through which a grooved director was passed into the bladder, from which a large amount of urine escaped.

The opening in the urethra was extended anteriorly through the stricture. A sound, No. 40 F., could now be passed through the urethra and into the bladder. From the perineal wound a catheter was passed into the bladder, which was held in place by a suture ; a drainage tube passed through the urethra ; the wound thoroughly irrigated, dusted with iodoform, and packed with iodoform gauze ; a suppository of 10 grains of quinine and 1 grain of opium was introduced into the rectum, the wound dressed antiseptically, and the patient placed in bed. The dressing was allowed to remain for four days, when the packing with the catheter was removed, and both wound and bladder thoroughly irrigated with a solution of boric acid. A sound, No. 40 F., was passed with the same ease at the time of the operation. The wound was again lightly packed and dressed antiseptically. The patient was dressed every three days, and a No. 40 F. bougie passed at the time of the dressing. Five weeks and three days after the operation the wound in the perineum had entirely healed. There was no difficulty experienced in passing a No. 40 F. bougie. The patient was discharged cured.

CASE VI.—*Perineal section and internal urethrotomy for an impermeable stricture of almost the entire pendulous urethra with distension of the bladder, resulting in incontinence of retention, the latter having been present for two years.*—W. A., contracted gonorrhœa in 1883, since which time he had more or less trouble in voiding urine, becoming decidedly worse in 1888. For the past two years there has been a continuous flow of urine (incontinence of retention), and for the last year has suffered, in addition to incontinence, with vesical and rectal tenesmus. October 17, 1890, W. A. was brought to my office by my friend, Dr. J. Howe Adams, when examination revealed a constant dribbling of urine with the accompanying urinal odor, blocking of the urethra, commencing one-half inch within meatus, a distinctly indurated condition of the entire pendulous urethra, inability to engage the smallest instrument in the diseased portion of the urethra, and the presence of a tumor in the hypogastric region, extending almost to the umbilicus, flat upon percussion and giving the sense of fluctuation. Examination of the urine made by Dr. Adams showed the presence of a small amount of albumen and pus ; no casts.

I advised that which in my judgment seemed to be the proper course, namely : perineal section and internal urethrotomy. The question of supra-pubic drainage for immediate relief and subsequent attention to the strictured urethra, I thought of, but dismissed it, believing this course the simplest, at the same time safest and most acceptable to the patient. A supra-pubic operation would not have relieved the patient of a subsequent perineal section and internal urethrotomy, owing to the involvement of the bulbous portion of the pendulous urethra. I would not have it inferred from the above that I am not an advocate of supra-pubic drainage, for I am thoroughly so, yet, I think the cases require discretion and judgment in their selection.

The result in this case proves the correctness of my opinion. I will not enter here into the indications and contra indications to supra-pubic drainage, but suffice to say, that certain complications arising in a case like this, as advanced age, unquestionably advanced Bright's disease, multiple perineal or urethral fistulæ, and the presence of pre-vesical abscess, which latter may be brought about by frequent aspiration of the bladder for the relief of the retention caused by impermeable stricture, if present, and which I have seen, would make me decide in favor of the supra-pubic to the perineal operation.

October 20 patient was etherized and placed on the table in the lithotomy position, when I did perineal section without a guide, as is my usual practice, in this manner relieving the distended bladder, which contained a large amount of foul smelling urine. I next prepared to do an internal urethrotomy with Maisonneuve's urethrotome, but was not able to pass the filiform bougie belonging to the same, through the urethra by the way of the meatus. With a very delicate eyed probe, I succeeded in traversing the urethra from behind forwards, engaging the instrument in the orifice of the urethra presenting anteriorly, and at the bottom of the perineal wound, when I threaded it with the silk attached to the smaller of the blades shown in the drawing, and to which are attached the larger blades. In this way I was able without any difficulty to draw the knives through after the probe, thus making the calibre of the urethra twenty millimetres, after which I completed the restoration of the urethral calibre to its normal standard, thirty millimetres, with the dilating urethrotome. I have found that in a certain number of cases, when the filiform bougie of Maisonneuve's urethrotome cannot be engaged by the way of the meatus, it is possible to traverse the urethra from behind forwards with a delicate probe, as was done in the above case, and in this way, with the separated blades, divide the strictured portion.

The usual dressing and after-treatment which I recommend and practice was carried out here most rigidly. The operation was not followed by a bad symptom, notwithstanding kidney complications might be expected from the prolonged retention and consequent damming back of urine, thus endangering these organs. Patient was confined to bed but eighteen days. The catheter which had been passed into the bladder through the perineal wound was removed the fourth day, from which time on the patient had perfect control of the flow of urine, demonstrating that the membranous urethra and consequently the compressor urethra muscle had been left intact. From the fourth day following the operation until recovery, November 25, I passed a No. 30 F. steel sound every fourth day.

ACID BICHLORIDE OF MERCURY AS AN ANTISEPTIC. ITS APPLICATION TO SURGICAL PRACTICE.

By ERNEST LAPLACE, M.D.

When my first article upon the superiority of an acidified solution of bichloride of mercury over other antiseptics was originally published (*Deutsche Med. Woch.* 1887, No. 40) in Berlin, but a few cases were cited to prove its efficiency in surgical practice. To-day, after three years trial in hospital and private practice, I feel warranted in making known the results obtained by its judicious use; confirming the hopes at first entertained, that an acid solution of bichloride of mercury possessed all the advantages of the ordinary solution of sublimate, without causing such a coagulation of the albumen of the blood, as would detract from the antisepsis expected of the solution. Furthermore, the antiseptic action of an acid sublimate solution is much more powerful than a non-acidulated one.

Repeating the experiments which I originally published in 1887, we find the following experiment as the basis of the question of acidifying sublimate solutions:

In a number of test-tubes, containing 5 c. c. m. of a 1–1000 sublimate solution, add respectively, $\frac{1}{25}$, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, etc., c. c. m. of ox serum. A heavy precipitate will form in the first tube; a heavier precipitate forms in the second tube, and so on, until the tube containing $2\frac{1}{2}$ c. c. m. of serum, when this precipitate begins to dissolve itself again. The tube containing $\frac{1}{2}$ c. c. m. of serum developed bacteria; and it followed that $\frac{1}{2}$ c. c. m. of serum was already sufficient to precipitate so much of the sublimate as would leave the resulting mixture entirely devoid of antiseptic properties.

Should the supernatant liquid be decanted, it will be found possible to grow the bacillus pyoceaneus, both in the decanted liquid and in the albuminous precipitate. This is the most palpable proof that a sublimate solution, as efficient as it is when in contact with non-albuminous fluids, becomes almost useless for the disinfection of albuminous fluids, such as the blood.

Then came the question as to the possibility of retaining for sublimate its same antiseptic property, although in contact with albuminous fluids. For this purpose many experiments were tried, with fruitless results. Finally, to 1000 grammes solution of sublimate (1–1000), 5 grammes of pure hydrochloric acid were added, and to a number of test-tubes containing 5 c. c. m. ox serum this acidulated solution was used as in the experiment mentioned above. In none of the tubes did any precipitate take place, and all remained sterile after inoculation, with the various pus producing bacteria and even anthrax spores. Instead of using ox serum, human blood derived from a placenta was substituted, with invariably the same result. Having thus solved the interesting problem of retaining for a solution of bichloride of mercury, the same wonderful disinfecting power in albuminous media that Koch had proved it to possess in non-albuminous media, a new horizon seemed to present itself to the field of disinfection; and it occurred to us that the disinfection or sterilization of the animal body would now become a matter of comparative facility. We therefore immediately divided our field of investigation into two distinct parts.

1. The disinfection of localities of the animal organisms that were of direct access to the antiseptic solution, such as wounds of all sorts, and ulcerations on the surface of the body or on parts contiguous to it.

2. The disinfection of the general economy and organs inaccessible to the direct action of the solution, such as the lungs, liver, brain, etc.

By experiment it was found a solution of acid sublimate, of the strength of 1–10,000 was sufficient to destroy the various micro-organisms of suppuration in five minutes, in the following way:

Sterilized silk threads, containing the bacillus pyoceaneus, streptococcus pyogenes aureus, albus and citreus, were placed for five minutes in solution of acid sublimate of various strengths, as weak as 1–20,000. The threads were then washed off carefully in sterilized luke-warm water and placed in gelatine tubes, which were afterwards rolled out after Esmarch's method. The tubes containing threads, which had remained five minutes in the solutions (1–1000, 1–2000, 1–10,000), remained sterile, while those which were in the solution of 1–20,000 developed the respective micro-organisms. This being the case when the acid solution of bichloride of mercury was used, and these results not being obtained when the ordinary solution of sublimate in water was used, we determined that the quantity of acid to be used was *five parts* to one part of sublimate, and the solutions to be made as usual; hence for a solution of 1–1000, take one part of sublimate, five of hydrochloric acid, and water for 1000 parts. Hydrochloric acid is preferable to all other acids, except when *tablets* of sublimate are desired; then tartaric acid forms a good vehicle for the purpose.

To determine the antiseptic power of this solution in the animal body, pure cultures of streptococci pyogenes aureus were injected into the subcutaneous cellular tissue of six guinea pigs. Three were then immediately treated with subcutaneous injections of twenty drops of the acid sublimate solution (1–2000); the three others were held as a control experiment, no injection being given. In forty-eight hours the three animals not treated with acid sublimate solution developed well marked abscesses, and in eight to ten days died of general septicæmia; but those that had received the injection of sublimate immediately after being inoculated, did not develop any abscess, nor did they succumb to the treatment. This experiment was repeated many times, with very nearly the same result. In one case out of twenty an abscess developed in spite of the subsequent injection of acid sublimate.

Having thus acquired a positive result as to the inhibitory, as well as the germicidal effect of the sublimate solution, in parts that were accessible to the direct action of the solution, it was left for us still to determine what power the solution would have in disinfecting the general economy of an animal, or such parts as were beyond the reach of the solution itself; as the lungs, lymphatic glands, etc. For this purpose six guinea pigs were inoculated in the peritoneal cavity with a pure culture of bacilli tuberculosis. Three days after the inoculations four of the animals were treated systematically with twenty drops of a 1–2000 acid sublimate solution, twice a day. This treatment was continued for one week and stopped for one week, then begun over again and continued for one week and stopped; then finally after the interval of another week, was continued for a week, so that the animals were under observation during six weeks, but only during three weeks were they actively treated. The two other animals were kept as a control experiment. At the end of the fourth week one of the animals being treated died. The autopsy revealed the intestinal glands much enlarged, and throughout the lungs were tuberculous deposits. At the end of the sixth week the five remaining animals were killed. Those kept as a control experiment showed well marked and extensive tuberculous deposits, the liver, spleen and kidneys presenting, as well as the lungs, numerous tubercles. In the animals submitted to treatment, just as many tuberculous deposits were found throughout the various organs, and in addition to this, extensive fatty degeneration of the heart, liver and kidneys. The conclusions to be drawn from the two experiments were clear.

Whereas, an acid sublimate solution acted locally as a disinfectant, when on the contrary it was injected into the general economy, not only was its strength materially diminished by mixing with the general circulation, but even so it seemed to lose from that moment any disinfecting or even inhibitory power. In addition to this, the saturation of the animal body with mercury, seems to impair the organism to such an extent as to produce an acute fatty degeneration of different vital organs.

With such information we proceeded to apply clinically the positive data gotten experimentally: that is, *acid sublimate solutions will destroy bacteria and inhibit their development in the animal body; provided the solution can come in direct contact with said bacteria, as is the case in laboratory experiments.*

It immediately suggested itself to us that various ulcerations, and more especially such as affect the surface of the body, would be the localities best suited to realize the antiseptic worth of the acid sublimate solution. Hence we, during the past three years, treated 250 ulcerations of various kinds in the Imperial Polyclinic in Berlin; in the Charity Hospital of New Orleans; in the Philadelphia Hospital and Medico-Chirurgical Hospital of Philadelphia. A detailed account of each case would prove tiresome, while the grouping of the cases into different classes, the method of treatment adopted in each group, and the results obtained, form the really practical benefit to be gotten from the present work.

The object being to disinfect or sterilize the wound, it was evident from the very first that the more putrid a wound was, that is, the more covered with foul granulations and filth, the more difficult it would be to sterilize. We therefore established the rule of removing, by means of the curette, all such foul tissue, and of paring off the edges of the ulceration with a knife whenever it was feasible; for the edges, especially when covered with thickened epithelium, are favorable lurking places for bacteria of all sorts. Having removed, therefore, as much as possible of this infected material, the acid sublimate could come in direct contact with the healthier tissue, which it was really our purpose to disinfect, so as to start there a healthy process of granulation. All ulcerations in which redundant and foul granulations existed were scraped; while all ulcerations which merely suppurated and where the superficial granulations did not appear unhealthy, were treated as though the bacteria which caused the suppuration, were all on the surface.

When the ulcerations were on the lower extremity the patients were kept mostly in bed. Absorbent cotton, dipped in the acid sublimate solution, was then applied to the ulceration. The parts were kept continually wet with the solution night and day. In a space of time, varying from forty-eight to sixty hours, the wound had ceased secreting pus, the granulations were rosy, and the whole surface had taken a healthy appearance. It was evident that the constant contact of the sublimate solution with the parts had destroyed all the micro-organisms, which, by their development, killed the young cells in their effort to build healthy granulations. It was a point never to be forgotten, that the solution should at no time be irritating or cause any pain.

Owing to this requisite it is impossible to give a stated rule as to the strength of the solution used in each particular case. Our purpose was reached by applying as strong a solution in each case as the patient would aver caused not the slightest pain. Should a solution of a given strength give pain, it was weakened by the addition of water until it proved non-irritating. Generally a solution of 1–2000 fulfilled this purpose, but sometimes it was necessary to apply a solution as weak as 1–5000. This was always carefully attended to, for we have known leucocytes to have been destroyed (poisioned) by too strong a solution of sublimate; and when this is the case they accumulate in the serous secretion of the parts and form a purulent discharge, which we found to be free from bacteria of any kind; but still these pus-corpuscles were to have been healthy granulation cells, and our treatment would be defeating our own purpose. When, however, the surface was covered with healthy granulations, some of the serous discharge was taken with a sterilized platinum needle and placed in tubes of bouillon and peptone gelatine, and these disclosed the fact that the secretions from the granulating surface were perfectly sterile.

Thus it was demonstrated that in a superficial ulceration, when the acid sublimate came in direct contact with the germs producing the ulceration, it was possible to destroy these germs, and, therefore, change the process from one of disintegration of elements of tissue (ulceration), into a healthy process of repair—healthy granulations.

This point having been attained, we could hope for a complete cure to effect itself only when the epithelium growing from the sides of the ulceration would have gradually spread over the whole of the now healthy granulating surface. As this process is a rather lengthy one, we adopted, for hastening the complete cure, Thiersch's method of grafting; supplying at once most of the needed epithelium, and by perfectly aseptic measures enforcing its immediate growth and spread, thus affording a complete covering to the ulceration—the only requisite for its cure. After sterilizing the spot from which the graft was to be removed (generally the anterior surface of the thigh), by washing first with ether, then with a solution of acid sublimate, 1–1000, strips of epithelium were removed, varying in size according to the dimensions of the surface to be grafted—generally two inches long and half an inch wide. This was done with a long, straight scalpel; the graft was gathered on the surface of the knife, for it was removed by placing the instrument flat on the surface of the skin, and with a zigzag motion the epithelium was "peeled" off as we would a potato. It was then carefully transplanted to the granulating surface, assuring ourselves that no folds were made and no inversion of the epidermis. The granulating surface being thus effectually covered, a sterilized dressing of three layers of absorbent gauze and a considerable amount of absorbent cotton was applied over the grafts.

These dressings were sterilized by steam, according to Koch's *gradual sterilization* plan. No iodoform or disinfectant of any kind was added to the treatment. For, as we had assured ourselves that the granulating surface was sterile; that our grafts were also sterile; that our dressings were likewise sterilized; it followed that there could be no micro-organisms present, and if such was the case, there was need of no agent to destroy them. Having carefully bandaged the grafted parts after the gauze and cotton were applied, two layers of tissue paper were placed around the parts, and another bandage applied around this, so as to have the dressing proper, effectually protected against dust, etc.

The patient remaining at perfect rest in bed for twenty-one days, such a dressing was left untouched, and the rule was never to change it should pain be absent from the parts under treatment. Rest in bed was always considered essential, for even a dependent condition of the limb produced such passive congestion as would materially increase the amount of secretion from the parts, which secretions would soon permeate the dressing; and secondarily, irritate the parts.

Meanwhile, the patient's general condition is attended to by the administration of such remedies and the observance of such diet as his particular diathesis would call for; this, of course, merely to facilitate the process of tissue building and repair. It would be quite useless for me and uninteresting to my readers to enter upon any details in this respect; sufficient be it to say, that a proper regard to the treatment of the diathesis that underlies the general condition, of which the original ulceration was a local expression, is essential for a rational and successful management of the case; our surgical measures being only for repairing the harm done, but in no way removing the cause of the original condition.

After a lapse of twenty-one days, therefore, no untoward symptom having presented itself in the case, the original dressing is removed, and we may rest assured to find a complete occlusion of the ulcerating surface, the epithelial grafts having firmly implanted themselves and spread to a certain extent in all directions, one meeting the other, so that the ulceration is now totally obliterated. On examining such a surface we find it always somewhat cyanosed, showing that the circulation is not quite as free as in the adjacent healthy skin; also a certain amount of induration. As soon as the patient attempts to walk, this retardation in the circulation is increased, and there is danger, should too much exertion be indulged in at first, that the whole graft fall off in a mass, and that the ulceration present itself again just as it was originally. To remedy this condition, gentle massage over the parts will facilitate the circulation. This can be practiced for a few minutes twice daily, and continued about one week. A light compressive bandage must then be applied and kept as a support to the parts for a month. Thus the patient is enabled to get around free from pain, and is protected against a future outbreak of the ulceration.

In those cases, however, where it is found necessary, from the amount of pain, or undue quantity of secretion present, to remove the dressing before the expiration of twenty-one days, particular attention should be paid to saving as many of the grafts as possible. It will be found that not a few have been pushed away from their seat by the subjacent secretion, and have consequently been destroyed by adhering to the gauze. When the gauze is to be removed for exposure of the grafted surface, it is recommended to remove at once all but the last layer of gauze. This must be left untouched, until it has been fully loosened from the parts by a warm but very weak solution of acid sublimate (1–5000). By this precaution none of the grafts that are *taking* will be pulled off with the dressing, as would most likely have been the case. The ulceration is then carefully cleansed with a lukewarm acid sublimate solution (1–5000), and covered again with gauze. If there be but a few small places devoid of epithelium the case might be left so, and we can wait for these places to be covered by the spreading of the adjacent grafts. Should, on the contrary, but few or none of the grafts have taken, then we can safely conclude that our proceedings have failed, and that some detail had surely been overlooked, or the proper degree of asepsis was not reached, as was expected.

The only remedy left is to begin the whole proceeding over again, being more careful, spending a longer time sterilizing the ulcerated spot, and even applying, finally, a temporary gauze dressing, through the last layer of which we would be able, after a few days, to observe whether or not suppuration has again manifested itself. Should such have been the case (and it has only happened to us in five cases so far), then must the idea of a permanent dressing be abandoned and the case treated with daily observation. But, on the contrary, should this exploration prove that after four days the wound, though showing a reasonable amount of secretion, is free from pus and odorless, then can a permanent dressing be safely applied without the risk of another failure.

Of the 250 cases mentioned above, 204 were healed with one dressing, 41 with less than ten dressings, and 5 had to be treated with daily observation and constant disinfection. No ulceration of the integument that has come to us for treatment in hospital or private practice, since the introduction of the acid sublimate solution, has been discharged without being completely healed at the moment of his discharge. These ulcerations were of many years standing, notably in 6 cases over thirty years; but the age of the ulcer did not seem to influence its progress towards healing, if only the principles enumerated at the beginning of this article were scrupulously attended to. Such, therefore, being the case with ulcerations of long standing, we found the task a much easier one when we had to deal with parts which had only been infected with the germs of suppuration for a few days. In these cases the application of the acid sublimate solution during ten to twenty-four hours, amply sufficed to permanently sterilize the wound.

Acting upon the information gathered as to the inhibitory action we found the acid sublimate to possess, as demonstrated by the destruction of the subcutaneous destruction of pyogenic germs in guinea pigs, the solution was employed in hypodermic injection for the treatment of boils and carbuncles. In whatever stage the carbuncle was, a hypodermic injection of 10 drops of a 1–2000 acid sublimate solution was administered in four different places about the circumference of the carbuncle. This caused a certain amount of pain, which, however, did not prove unbearable. In twenty-four hours the carbuncle appeared less irritated, the central portion began to show its tendency to slough; these injections were repeated in four days, and the case would progress to a complete cure, though at no time could the carbuncle or any part of its secretion be found to be free from living germs. Ordinary boils or furuncles would only require the injection of 3 or 4 drops of the solution in the thickest portion to ensure a speedy change towards resolution.

In the treatment of the various skin diseases, known to be due to local parasitic infection and various syphilitic ulcerations, these seemed to improve more rapidly under the use of the acid sublimate solution than under any other disinfectant brought to our notice. It was found expedient to thoroughly cleanse the parts with warm water and soap, so as to remove all sebaceous material, and then apply the solution constantly, being slightly warmed —100°–104° F.

In the disinfection of the respiratory passages of cases of diphtheria, no antiseptic solution checks the odor, or has as powerful an inhibitory effect upon the nasal mucous membrane, whereby the production of false membranes is stopped. In the spring of 1888 Prof. Henoch tried it in his clinic for children's diseases at the "Charité" of Berlin, and has since then had it in constant use.

In gynæcological and obstetrical practice its effects have been fully tested, and no better guarantee of its worth can be given than that on the fourth of February of the present year. The French "Académie de Médecine" ordained that the acid sublimate solution was the most reliable and efficient antiseptic, and that it be adopted for general use by all mid-wives throughout France. The solution adopted is of the strength of 1–4000, tartaric acid being used, as it facilitates the formation of tablets, which are easily dispensed and carried about, being always ready for use.

The entire reliability and superiority of the acid sublimate solution as a general disinfectant over the ordinary sublimate solution, and hence over all other antiseptic solutions, is best proved by its adoption and constant use in Koch's laboratory (Hygienic Institute) in Berlin; in the Institute Pasteur in Paris, and in all the principal laboratories and hospitals, both in Europe and America.

Finally, it becomes of the utmost importance that a few definite words be said about its use in the domain known as *acute* surgery. To start with, let us remark once more that antisepsis is a stepping stone to asepsis, and that consequently the surgeon's aim should be to ultimately acquire such a perfect state of cleanliness for himself, his patient, the instruments and surroundings, as to require no antiseptics of any kind whenever he undertakes an operation which results in the infliction of a fresh wound—but a purely aseptic condition.

In order to prepare himself for the operation, therefore, the acid sublimate solution will be found more reliable and effective to sterilize everything concerned (except instruments) than any other solution. Instruments will be sterilized by steam or carbolic acid solution. The wound may be thoroughly washed with the solution, though the very fact that it is acid will produce a slight amount of irritation; this will never be found an objection in any wound that does not involve a *serous* membrane. In laparotomies, where the peritoneal cavity is not purulent, the use of the acid sublimate solution is contra-indicated, and plain warm water, previously sterilized, will prove by far the best means of thoroughly washing out the cavity, without exposing the patient to an acute peritonitis from undue irritation, or to the toxic effects of the particular antiseptic used.

In every other condition where the indication was to sterilize a serous membrane—empyema, tuberculous peritonitis, etc., the most satisfactory results were always obtained from the use of the acid sublimate solution. It has, however, proved irritating to the conjuctiva in any strength greater than 1–5000, but can be well borne at this strength.

There are new antiseptics coming to light every year, but it is the concensus of clinical opinions, as well as the invariable result of experimental research in laboratories, that none can approach the 1–1000 solution of sublimate, hence its widely disseminated use throughout the world. But when we consider that the 1–1000 sublimate solution, as advocated by Koch in 1882, has the well known disadvantages of being unstable, precipitating the earthy salts contained in water, and, furthermore, precipitating the albumen contained in the blood, as can be proved with the greatest ease, it must be evident that a solution that does not possess these imperfections, as proved by laboratory experiment, and which from clinical application and experience gives the most flattering results, should be substituted for the ordinary simple sublimate solution. The original experiments published in 1887 have been confirmed and amplified by Professors Fränkel, Behring, Proskauer, in Germany; by Budin, Pozzi and Roux, in France; and Pampoukis in Athens; and many others in Europe and America.

The clinical notes given above suffice to demonstrate its worth in surgical practice; but, withal, in the clinical use and application of an antiseptic solution as compared with its trial in laboratory experiment, the following points must never be forgotten if we desire to find the results of the latter confirmed by the former, and have the laboratory and the bedside agree. The conditions of experimentation must be the same as far as lies in our power to make them so. While experimenting with germs in a test-tube the antiseptic bathes them on all sides, and the condition of further development of these germs are *a priori* brought down to a minimum; but, on the contrary, we know that even in an ulceration considered superficial, the tissue destroying germs have spread behind the granulation cells, out of the immediate reach of the antiseptic, are constantly fed by a fresh supply of blood from the capillary circulation, and are further favored by a suited degree of heat. All these conditions must be considered as militating against the direct action of the antiseptic, and we should therefore not be surprised if, with such a discrepancy of surroundings, these germs being submitted to the same destroying agent, should manifest more resistance in one case than in the other. Let no one, therefore, decry laboratory experimentation by heralding its want of accord with clinical evidence; but, on the contrary, whenever such is the case, the true investigator will seek to discover that which is the cause of this difference; for in medicine as elsewhere an immutable relation between cause and effect exists.

Histology, the intelligent use of the microscope, will elucidate the question in most cases, as it has surely done in the present one; for as soon as a clear and unobstructed scope, by scraping, was given the acid sublimate solution to reach the pathogenic germs, whether these existed on an ulcerating surface of the human body, or in the test-tube of the laboratory experiment, they were effectually destroyed with equal ease.

We should furthermore remember just *what* is to be expected of an antiseptic solution; it should *sterilize* the parts and nothing more. It contains no surgical principle other than this; it is not surgery. It will not fulfil the indication any further than destroy germs. It is a wonderful agent for destroying the surgeon's greatest enemy (infection), but that is all. The mind of the surgeon remains now, as before, master of the situation, and must guide the case as carefully as ever by the constant application of his whole knowledge and skill, if even with judicious antisepsis he wishes to maintain his position among the enlightened members of the medical profession.

CONCLUSIONS.

1. Acid sublimate solution consists of the ordinary sublimate solution 1–1000, to which five parts of any acid are added, preferably hydrochloric, citric or tartaric acid. It is the *acid* condition which retains the albumen in solution.

2. Five parts of hydrochloric acid will dissolve one part of sublimate; hence this is a convenient form of keeping a concentrated solution. Tablets or powders may be made by combining one part of sublimate with five of citric or tartaric acid. This is a convenient form for ready use. With the above a 1–1000 sublimate solution is made by taking the relative amount of sublimate in the compound.

3. The acid sublimate solution is stronger and more effective than the simple sublimate solution; its strength is uniform, never deposits any precipitate, and retains all albumen in solution.

4. It has been advocated by Koch and is used in his laboratory (the Hygienic Institute) in Berlin; in Pasteur's laboratory in Paris, and the principal hospitals, as the best disinfectant.

5. In a word, it should be used wherever it is thought that sublimate is of service, being proved to have marked superiority over the simple sublimate solutions, without any of its disadvantages.

6. It has proved itself unexcelled in clinical experience, having been adopted by the "Academie de Médecine" of Paris to be used throughout France, this conclusion being the unanimous report of a commission named by the Minister of Commerce for the purpose of studying and reporting on the question of antisepsis applied to midwifery.

7. All risk of intoxication or irritation can be eliminated when we realize that the antiseptic value of the acid sublimate solution is retained when its strength is as reduced as 1–10,000.

A CASE OF PUERPERAL SEPTICÆMIA SIMULATING TYPHOID FEVER.

By CLARA MARSHALL, M.D.

Abdominal surgery, with its increasingly wide range of applications, has, within late years, introduced new problems into the treatment of the puerperal state, of which the following case is an illustration:

Mary F., æt. 20, white, domestic, was admitted to the gynæcological wards of the Philadelphia Hospital June 10, 1890. I am indebted to Dr. Louise G. Rabinovitch, under whose care the patient was delivered, and to Dr. Rothrock, resident physician, for notes of the case.

The patient had a good family history; parents both alive and well, and no history of any family disease. She had had the ordinary diseases incident to childhood, also scarlatina at thirteen years of age, from which she made a good recovery and remained in good health.

The patient was delivered by Dr. L. G. Rabinovitch at the Maternity Hospital January 11, 1890. The fœtus was macerated and was presumed to have been dead in utero for about a week. The uterus was washed out with a 2 per cent. solution of creolin, as is the practice at the Maternity in all cases of this kind. About the third day after delivery the lochia began to be offensive, but without any special rise of temperature. Douches of creolin, 2 per cent., were given until the odor disappeared. The patient was getting along nicely after the first few days of her lying-in, when she was rather uncomfortable on account, it was presumed, of the abundance of milk in her breasts, notwithstanding the attempt made to dry up the secretion. The milk soon disappeared and she felt well, though she was exceedingly nervous because her parents did not know anything about her condition. For the first few days the uterus was soft and flabby, the os open and lips thin, though involution was thought to be proceeding fairly well. On the eleventh day of her lying-in she had an attack of facial erysipelas, from which she recovered sufficiently to leave the hospital. The temperature rose during the attack to 104.4° F.

The patient stated that since leaving the hospital she never felt entirely well, but was compelled to spend the greater part of her time in bed. During this time her condition seems to have been variable, better at times for a few days, succeeded by a relapse into her former condition. For three weeks previous to admission to the hospital she suffered from pain in the lower part of her abdomen. On March

30, three days before admission, she was seized with violent headache, while the abdominal pain grew worse; she experienced no chill but felt "feverish." Her condition must have continued much the same until her admission April 2, at 3 P. M. She then had a temperature of 101°; pulse 136, and weak. She was restless; complained of pain in lower part of abdomen; and over the whole of the same region there was marked tenderness upon pressure. At 10 P. M. the temperature reached 104°, and at 6 A. M. the following day it reached the same point.

April 3, very restless and still complains of pain. Examination of urine reveals the presence of albumen and casts (granular and hyaline). During the day she vomited greenish matter resembling grass. The stools, two in number, were watery, yellowish, and contained some mucus. During the night she was slightly delirious; pulse 150 to 160, weak, irregular; respirations regular.

April 4, weaker, very restless, suffered from pain, which was so intense as to cause her to cry out occasionally; easily aroused and seemed rational. The treatment up to this time consisted mainly in the administration of liquid food, quinine, whiskey and digitalis, and in the external use of turpentine in the form of stupes.

With the history of a macerated fœtus, foul lochia, and erysipelas; with removal to unfavorable surroundings while not feeling entirely strong; with failure of return to usual health; with the subsequent development of acute abdominal symptoms; with such a clinical history as this, the question of surgical interference arose. After consultation with my colleague, Dr. Edward P. Davis, it was decided to make an exploratory incision; this was done April 3, at 4 P. M. Upon reaching the peritoneal cavity a digital exploration of the pelvis and lower abdomen did not reveal the necessity for further surgical interference. A portion of the intestines was drawn out of the abdomen with a view to ascertaining if adhesions were present; none were found, although that portion of the intestine which was seen was deeply congested, giving the appearance of inflammatory action. The abdomen was flushed with hot distilled water and closed with interrupted silk sutures without drainage. The patient was very weak during the operation and was supported by hypodermic injections of ether, whiskey, atropine, nitro-glycerine, and heat to the epigastrium.

The pulse after the operation was 136 and weak, but soon grew stronger, and the patient's condition was apparently no worse than before the operation. 8 P. M. the pulse began to fail, circulation more feeble; extremities cold and clammy; temperature 104°. At 9 P. M. temperature 105°; pulse weak and rapid, and could not be counted at the wrist; respirations 56; very restless and growing rapidly weaker. At 11 P. M. temperature 106°; respirations 60. Patient died at 11.50 P. M.

AUTOPSY. *Thorax.*—No pleural adhesions; the posterior portion of the lungs was the seat of hypostatic congestion.

Heart.—Normal in size, pale; muscle soft and flabby; no valvular lesions; no heart clots; blood dark, liquid. Heart muscle showed evidence of acute fatty degeneration.

Abdomen.—The peritoneal cavity contained a small quantity of dark red fluid; some extravasation of blood into the sub-peritoneal fat of abdominal wall just below lower edge of wound. That portion of intestine occupying the pelvic cavity was deeply congested, the remainder light pink in color and distended with gas. Pelvic peritoneum covered with small flakes of lymph, as was that portion of intestine occupying it. Mesenteric glands enlarged, especially about the lower portion of the ileum, where they were congested (dark red in color), and some of them had attained the size of filberts; on section they were soft, dark red, some of them showing a tendency to break down.

Spleen.—Much enlarged (weight, 13 ounces), soft, friable, dark red, pulpy.

Kidneys.—Slightly enlarged, capsules stripped easily; on section cortex rather pale and streaked; medullary portion also pale.

Liver.—Rather soft in consistence, otherwise presented nothing unusual.

Uterus.—Retroverted, moderately soft. Section revealed the presence of a small gangrenous spot upon the fundus.

Ovaries.—Ovaries and tubes freely movable; ovaries perhaps slightly enlarged.

Stomach.—Anæmic, slightly dilated; no lesions.

Small intestine.—Examined throughout its extent; about four feet above ilor-cæcal valve, Peyer's patches were noticed to be slightly infiltrated; as the cæcum was approached the infiltration became more marked. About two feet above the valve was found a patch much more infiltrated than the rest, the surrounding intestine deeply congested, and the peritoneal surface of intestine opposite well covered with lymph; as the valve was approached the whole intestine was infiltrated and ulcerated, giving an appearance somewhat resembling chronic enteritis; ilor-cæcal valve involved in like manner.

Cæcum.—The solitary glands of the cæcum and upper part of colon, for about one foot from the valve, were indurated and ulcerated.

Brain and cord.—Not examined.

The organs and tissues throughout the body generally showed evidence of acute fatty degeneration.

The post-mortem appearances so closely resembled those of typhoid fever that such a diagnosis might readily have been made by one not having had an opportunity to study the case in connection with its clinical history during life. My colleague, Dr. Edward P. Davis, was of the opinion that the case was one of puerperal septicæmia; and Dr. Ernest Laplace, who saw the specimens almost immediately after the autopsy, placed especial stress upon the gangrenous spot near the fundus uteri, a spot in which a putrefactive and infectious condition existed, as an explanation of the mode of infection.

Passing this case in review, it is possible that had the patient been placed under more favorable conditions as to surroundings and treatment in the beginning of the acute attack, she might have recovered; also, that surgical interference would not have been of avail at any period of the attack, since there were no pus tubes to be removed, no abscess cavity to be drained, no adhesions to be broken up, etc. Suppose, then, one were confronted with a similar case, one with the same set of symptoms, the same clinical history; one in which surgical interference might or might not save life, but in which death would surely take place without it; how should one proceed? In other words, suppose one is forced to meet one of two issues: either to make an exploratory incision with a view to further interference, if necessary, with a possibility of negative results to the patient, or to allow the case to proceed to a fatal issue, without any such attempt to save life, only to find (possibly) at the autopsy an abscess cavity or some other equally plain indication that an operation was needed. Either position is uncomfortable enough; I prefer the former.

REPORT OF TWENTY-FOUR ABDOMINAL OPERATIONS IN THE PHILADELPHIA HOSPITAL.

By E. E. MONTGOMERY, M.D.

I regret that the data at hand will not permit me to present a report of the entire abdominal work of the hospital. This report comprises the first successful ovariotomy performed in the institution, and the first successful operation before a public clinic. Case V was the first patient upon whom the operation for removal of the appendages was done in the institution. The histories of the patients are briefly as follows:

Case I.—*Ovarian tumor.—Ovariotomy.—Recovery.*—Mary W., æt. 28 years, married, habits irregular, entered the hospital April 23, 1879. She presents a family history of phthisis and has never been rugged. Menstruation began at twelve years and was regular until four years ago. She has had three miscarriages; first, at five months. Four years ago noticed a swelling in the left inguinal region, which gradually increased, and during its growth menses have been irregular. During the last two years she has had occasional retention of urine, requiring use of catheter, and has suffered continually from morning sickness. Pain in the lower part of the back has occasionally been severe, at one time causing her to attempt suicide, which led to her incarceration in the Insane Department of this house. She is now very irritable, indulging in frequent quarrels and requiring constant oversight to prevent attempts at self-destruction. The abdomen is quite prominent, presenting a tumor which extends midway between the umbilicus and sternum.

Operation, May 21, 1879, in which Drs. Walker, Warder, Hatfield, Bell and Martin assisted, before a class of two hundred students. The operation was done under the spray and with all antiseptic precautions. The ovarian tumor, a single cyst without adhesions, was removed; the other ovary, after puncturing two small cysts, was permitted to remain. The patient was somewhat difficult of control during convalescence, otherwise nothing abnormal. Maximum temperature 101.6°. The patient came to my office some six years later, eight months pregnant, and had had a previous miscarriage.

Case II.—*Colotomy.—Malignant rectal stricture.*—Louisa P., æt. 35 years, married, mother of five children, entered the hospital the early part of April, 1890, suffering from cancer of the uterus and rectum, causing stricture of the latter viscus.

She noticed an uneasiness about the rectum eighteen months ago, attended with pain and straining during defecation. The evacuations were slight, liquid, muco-purulent and sometimes bloody. This condition continued at intervals, until five months since, when it became permanent. She is greatly emaciated, has a sallow, cachectic appearance, complains of want of appetite, nausea, frequent muco-purulent or sanguineous stools, attended by great pain and severe tenesmus.

No syphilitic history can be elicited. Father and mother are both dead; the latter died from rectal obstruction, probably cancer. The uterus was found hard, retroverted and firmly fixed; the rectum and posterior vaginal wall were also dense and resistant. The rectum was blocked an inch from the anus by a firm annular stricture, which would not admit the tip of the little finger.

April 14, rectotomy was done by cutting through the stricture towards the sacrum. The walls of the rectum were contracted and indurated as far as the finger would reach. A prostrating diarrhœa set in, followed by nausea and vomiting. Her skin was of a dirty brown color and emitted an offensive odor. Colotomy was now recommended, and the operation done before the class April 28. Her condition was so feeble as to render her survival of the operation doubtful. The operation of lumbo-colotomy was done, in which Drs. Parish, M. B. Musser and Stryker assisted. The gut was reached without difficulty, stitched fast to the skin edges and immediately opened. The patient stood the operation badly, and it was only by assiduous attention that she survived the operation. The wound was dressed with oakum saturated with carbolized oil. As soon as she could swallow, whiskey ℥ ii., and digitalis tincture gtt. xx. were given, and ℥ ss. of the former with gtt. v. of the latter, directed to be given every three hours.

The temperature was 100.8° in the evening, which was the maximum reached during convalescence. The first evacuation through the opening took place upon the fifth day. From this time she continued to improve, until, at the end of the month, she was able to attend to herself. She survived the operation one year and died from the progress of the disease.

An autopsy disclosed complete destruction of the uterus and rectum, and general adhesions between the intestines. She had suffered from diarrhœa during the remainder of her life, but kept it under control by the daily use of morphine, $\frac{1}{4}$ of a grain. There was no disagreeable odor and she had no difficulty in maintaining cleanliness.

CASE III.—*Multiple uterine fibroid partially calcified.—Supra-vaginal hysterectomy.*—Maria B., colored, æt. 53 years, single, domestic, admitted to the hospital April 21, 1880, with large abdominal tumor, with which she had been suffering for seventeen years. The growth began in the left side and gradually extended until the entire cavity was filled, and it pressed upon the diaphragm. Pain has been slight; her greatest inconvenience was due to the size and weight of the mass. A sister suffers from the same condition. The menopause took place seven years ago, since which no change in the tumor has occurred. Prior to the menopause she lost a large quantity of blood at each period. In standing, the abdomen is very prominent; the patient throws her body back in order to maintain the centre of gravity. She is as large as a woman at full term pregnancy. When lying, the abdomen is still prominent; the abdominal walls then show the distended veins.

The growth is quite irregular, being more prominent to the left above and to the right below, while the umbilicus protrudes like a nipple. The tumor, irregular or nodular, was freely movable; presented a flat surface in the hypogastric region, and the pedicle, hardly an inch in diameter, could be readily felt. The finger could with difficulty be passed through the unruptured hymen ; the os was normal, cervix elongated and apparently attenuated ; posteriorly could be felt a large mass filling up the pelvis, while another mass could be felt above. The mass in the pelvis pressing upon the rectum was as freely movable as the relation of the parts would permit, and was directable to the mass above. That it had undergone calcification was evident by its resistance and the cracking of a bony plate during the examination. At the earnest solicitation of the patient an attempt at the removal of the growth was decided upon.

May 5, 1880, the operation was performed, in which I was assisted by Drs. Warder, Parish, Linn, Stryker and Milliken. The incision extended from the umbilicus to the symphysis. The growth was a cluster of fibroids, the largest weighing seven pounds, the whole twelve. The large mass was adherent to the omentum. The pedicle was ligated with iron wire in three sections ; two masses projected into the pedicle in such a way that they were cut through in the removal of the mass and were afterwards enucleated. Their removal loosened the tension of the wire and caused bleeding, which was only controlled by the use of the actual cautery. The pedicle was dropped and the wound closed with silver wire ; a drainage tube was inserted in the lower angle of the wound. The patient suffered from profound shock, and although reaction took place and the temperature reached 103.8°, she died at the end of fifty-three hours, of shock and exhaustion.

Autopsy showed the wound glued together, except at the point of insertion of the drainage tube ; intestines were glued to the stump ; no indication of peritonitis. The remaining cervix measured 2½ inches ; kidneys were large and fatty ; liver fatty ; heart soft and flabby ; aortic valves contained bony plates. The aorta had undergone ætheromatous degeneration and contained numerous bony plates.

CASE IV.—*Large uterine fibroid.—Supra-vaginal hysterectomy.—Death.—Autopsy.*—Sarah B., colored, æt. 46 years, widow, entered the gynæcological ward in February, 1882, soliciting an operation for a large abdominal tumor. During her earlier years she had frequent hemorrhages, at one time did not menstruate for five years, and had not seen her menses for two years when she came under observation. In the eighteen years during which she had been a sufferer, she had been subjected to a course of ergotine hypodermically, and the earth treatment. The abdomen was prominent, its walls thin and stretched, so that the mass lay over the symphysis and projected but little above the umbilicus. The tumor was regular in outline and symmetrically developed. Above to the right, a mass could be felt which was connected with the large mass by a narrow pedicle. The bladder covered one-half the anterior face of the tumor. That the tumor had developed in the anterior wall of the uterus was evident by the situation of the bladder and the passage of a sound five inches along the posterior part of the mass.

March 17, 1882, assisted by Drs. Duer, Warder, Parish and Musser, an opening was made from above the umbilicus to the symphysis ; the peritoneal covering of the mass was cut through with the thermo-cautery and the bladder stripped off. The capsule was raised on either side, permitting ligatures to be passed beneath the broad ligaments ; the lower part of the cervix was secured by two ligatures. Very little blood was lost, but the patient early developed alarming symptoms and died two hours after the operation from shock.

Autopsy showed the ureters dilated to the size of the finger ; both kidneys sacculated, forming mere cysts. The left kidney contained considerable pus.

CASE V.—*Menstrual Epilepsy.—Removal of the appendages.—Recovery.*—Sarah H., æt. 17 years, entered the hospital April, 1884. Excepting a severe attack of inflammatory rheumatism she had enjoyed good health until she was thirteen years old, when she began to have epileptic seizures; these occurred monthly. At the time of her admission she was unconscious from ten days to two weeks out of each month, during which she would have frequent convulsive attacks. Her warning of an impending attack would be a fulness in the head, tingling in various parts of the body, and pain in the back. She had had a trace of menstrual discharge but once in the course of her life. Family history negative. She was pale, flabby, anæmic, poorly developed, and quite hysterical. The extremities were cold and clammy; appetite good, no abnormal cravings; bowels constipated; urine normal. She had a mitral regurgitant murmur. The epileptic attacks varied; some resembled epilepsia gravior, others petit mal. In the former there was a sudden scream, foaming at the mouth and general convulsions, followed by profound stupor for several hours; tongue was bitten and urine and feces voided in bed. In the lighter attacks she utters a piercing scream, falls from her chair, lies motionless for a few minutes and recovers without any knowledge of what has occurred. Her falls from bed were so frequent that her mattress was placed upon the floor during the epileptic period. Local and constitutional measures had been carefully tried without avail in limiting the frequency and severity of the seizures.

Operation, September 13, 1884, in which I was assisted by Drs. Stryker and Hearn. The tubes and ovaries were removed. The ligature slipped from the left stump, but it was quickly seized with compressing forceps and retied. Both ovaries were enlarged and contained a number of cysts. The maximum temperature during convalescence was 102°, and that but for a few minutes. She was returned to the ward on the 26th, and that night had a convulsion. She had a number of attacks before the first of November, but none so severe as those previous to the operation. In none of them did she fall out of bed, and was conscious during the intervals. Five weeks passed at one time without a convulsion, and some two months at a later period. During the winter, owing to exposure incident upon the overcrowding of the hospital after the burning of the Insane Department, she had an attack of inflammatory rheumatism, which terminated her life.

CASE VI.—*Removal of the appendages.—Recovery.*—Mrs. G., æt. 28 years, admitted to the hospital in January, 1887, with the following history: married, one child, two miscarriages, menstruation at 16 years, regular, attended with pain, beginning the day before and lasting through the flow, which varied from one to six days in duration; married at 18 years. Four years ago, while lifting a trunk, she was prostrated by severe pain, which ended in convulsions; this pain has been continuous since. She has also been excessively nervous, amounting, at times, to insanity. An operation was done at that time for prolapsus, followed by so marked aggravation of her mental symptoms as to necessitate her confinement in an Insane Asylum for nine months. There was a period, about this time, during which she did not menstruate for eleven months. For the last year she has menstruated but once in two months, and each period has been attended with agonizing pain and an exaggeration of the nervous symptoms. Examination caused so much pain that an anæsthetic was resorted to. Uterus was retroverted, ovaries enlarged, prolapsed and adherent, the left the larger.

January 17, 1887, assisted by Dr. M. B. Musser, and in the presence of the resident staff and the graduating class of the Medico-Chirurgical College I proceeded to remove the uterine appendages. The ovaries and tubes were enlarged and adherent. Duration of the operation twenty-five minutes. Maximum temperature 101° on the day after the operation, due to the administration of morphine, one grain. This was the last dose administered, although she had been using it daily for two months previously.

She left the hospital in good condition at the end of three weeks, and a month later accepted the position of matron in a children's asylum, discharging the duties with the greatest acceptancy for over a year. She had a severe fall, following which there was a development of pelvic inflammation, from which she again lost her mental equipoise, and has since been confined in the asylum at Norristown.

CASE VII.—*Removal of appendages.—Recovery.*—Ellen T., æt. 35 years, had been an inmate of the hospital for several months. She is single, has lived the life of a prostitute, and complains of severe pain in the left side, which is greatly aggravated by locomotion. This pain is greatly increased preceding and during menstruation. Examination disclosed considerable enlargement of the left ovary, which was very tender under pressure.

Operation, April, 1886, assisted by Dr. Parvin; the appendages were removed. The operation was tedious, owing to the extensive adhesions and the rigidity of the recti muscles. Her condition the day following the operation was bad; pulse 140 and flickering; respiration 5 to the minute. This condition was induced through the administration by the resident physician of large doses of morphine, under the mistaken idea that he could thus prevent the development of peritonitis. The convalescence was rapid, and the abnormal symptoms removed.

When seen two years later this patient was entirely free of the former distressing symptoms, but there was a slight ventral hernia, the only one I have had as a sequel of my abdominal work.

CASE VIII.—*Prolapsed ovaries.—Retroverted uterus.—Removal of one ovary and tube.—Broad ligaments stitched to the anterior parieties.—Displacement recurred.*—Mrs. D., æt. 28 years, mother of three children, no miscarriages, was admitted to the hospital January 13, 1888. Five weeks prior to her entrance she experienced severe pain in the lower abdomen, after lifting a heavy table, which continued for a number of days, and caused intense nausea and vomiting. The pain was greatly aggravated by locomotion and coition.

The ovaries were found enlarged, situated in Douglas' cul de sac beneath the retroverted uterus. The latter was readily replaced, but the displaced ovaries rendered her unable to wear any support.

February 17, 1888, assisted by Dr. Parish and in the presence of the resident staff, the abdomen was opened, the left ovary found cystic, removed, and its stump stitched to the anterior parieties. The right ovary was healthy; its ligament was also stitched to the abdominal wall. The second day after the operation, in the absence of the nurse, she got out of bed, walked across the room and helped herself to a pitcher of water. Two days later her temperature rose to 103°, and a severe attack of bronchitis set in. The coughing resulted in separation of the surfaces which had been sutured with carbolized cat-gut. The organs were again displaced and now bound down by adhesions.

CASE IX.—*Hydrosalpinx.—Removal.—Recovery.*—Nellie R., æt. 26 years, entered the hospital February 8, 1888, suffering from pain and weight in the pelvis. A long cylindrical tumor was felt posterior to the uterus.

February 17, Dr. Parish assisted me in its removal. It was something larger than an orange and was brought out without rupture. The highest subsequent temperature, 101°, occurred after the removal of the sutures upon the seventh day. She recovered quite rapidly, but had two or three attacks of cellular inflammation, which begun upon the opposite side. She has, I believe, died from an attack of Bright's disease.

CASE X.—*Pyo-nephrosis.—Nephrectomy.—Death a few hours later from shock.*—Mary J., æt. 30 years, entered the institution about February 1, complaining of severe pain in the right side. She was white, waxy looking, with a pulse of 120, and a temperature varying from normal to 102°. A tumor filled the right side of the abdomen, extending from the iliac fossa to beneath the ribs and transversely slightly beyond the ribs median line. The tumor was tense, firm, and but slightly sensitive. The growth extended backward into the lumbar region and was not movable. The diagnosis was sarcoma of the kidney.

February 17, 1888, assisted by Dr. White, nephrectomy was done. The opening into the abdomen disclosed that the tumor contained fluid. The incision had been made into the right semilunaris and the peritoneum torn through external to the colon; the tumor was cut into, permitting a quart of pus to escape; the kidney structure had been largely destroyed and a calculus nearly three inches long was lying in its pelvis. The tumor was enucleated until the vessels at the pelvis were approached, when, there being from the size of the mass considerable traction upon them, it was concluded better to ligate a portion of it and cut the remainder away. This, however, proved to be a mistake, for no sooner had the mass been removed than there was a gush of blood so strong as to demonstrate its source from the renal artery. The vessel was seized with hemostatic forceps, and owing to the condition of the patient the abdomen was hastily closed; she died two hours later.

An autopsy, twenty-four hours after death, showed that one side of the renal artery had been cut, and this had been seized by the forceps. The opposite kidney was also in a state of fatty degeneration.

CASE XI.—*Exploratory section.—Cellulitis.*—Mary J., æt. 29 years, married, has suffered from severe pain in the pelvis for several months. A mass is situated to the left of the uterus which is quite immovable. Hoping that the mass originated in a deceased ovary and tube, an incision was made March 15, 1888. The left side of the pelvis was found filled with a mass of exudation which completely enveloped the appendages, so that they could not be enucleated. Her convalescence was attended by no unpleasant symptoms, the maximum temperature being 100.2°. She expressed herself as being very much relieved by the operation, but the relief was not, however, of long duration.

CASE XII.—*Removal of appendages.—Salpingo-ovaritis.*—Rebecca R., æt. 24 years, married, had suffered for six months from severe pelvic pain; meanwhile, menstruation had occurred every two weeks. The uterus was retroverted, and both ovaries prolapsed and bound down by extensive adhesions; the ovaries were large and quite tender.

March 15, 1888, Dr. Parvin assisted me in the removal of the appendages; they had to be peeled out of the encapsuling adhesions. The patient was greatly benefitted by the operation. The convalescence was unattended by a single unpleasant symptom. The maximum temperature was 99.2°. She left hospital at the end of month. Three months later she came under observation with an attack of pelvic cellulitis, during which she suffered with frequent and prolonged hemorrhages. For some months she was in good health, but the pelvic trouble became so marked that Dr. Hirst reopened the abdomen, finding the ligature and a small portion of ovarian stroma still remaining. I am uninformed as to the result of this operation farther than that the patient recovered from its effects.

CASE XIII.—*Salpingo-ovaritis.—Removal of the appendages.—Recovery from operation.—Unpleasant sequelæ.*—— ——, æt. 20 years, single, entered the hospital early in January, 1889, suffering from pelvic pain following an acute gonorrhœa; she complained so continuously of pain that, although there was but slight evidence of pathological changes in the tubes, it was decided to remove them. This operation was done in the clinic January 26, 1889. The convalescence of the patient was normal, though she was constantly complaining of obscure symptoms, which finally centralized in the bladder. She left the ward at the end of the third week, and two days later appeared at the Medico-Chirurgical. Later, she came under the care of Dr. Hirst here, who made a vesico-vaginal fistula to rest the bladder; this was afterwards closed by Dr. Parvin, who subjected her to various measures to allay the vesical tenesmus. I found her in the ward during a part of my last term still complaining of the bladder, although the physical signs were negative.

CASE XIV.—*Cystic and prolapsed ovaries.—Removal of the appendages.—Recovery.*—— ——, æt. 24 years, single, an inmate of the house for a few weeks, complained of severe pain in the inguinal regions, which had been continuous and incapacitated her for work. January 26, 1889, immediately following the preceding case, she was operated upon. Both ovaries and tubes were removed; the ovaries were cystic, the tubes enlarged and inflamed. The second patient was removed from the operating room dressed ready for bed in fifty-seven minutes after the first had entered. The convalescence of this patient was normal until after the removal of the sutures; indeed, until the end of two weeks, when an abscess formed in the abdominal wound. This was opened, and formed a sinus which continued to discharge for some weeks, although it was confined to the abdominal wall.

CASE XV.—*Carcinoma uteri (corpus).—Vaginal hysterectomy.—Recovery.*—Mary D., æt. 51 years, married, mother of several children, ceased to menstruate at forty-six; a year ago had a return of the bloody discharge, which, at times since, has amounted to a hemorrhage. She was pale and weak; cervix healthy; body of the uterus enlarged and hard. The introduction of a probe was followed by bleeding; scrapings obtained by curetting the cavity were negative. The age of the patient, interval since menopause before return of flow, size and density of the body, with frequent lancinating pain, led to the diagnosis of probable carcinoma of the body.

February 14, 1889, vaginal hysterectomy; separation of vagina from uterus front and back, and application of clamps to the broad ligaments; uterus cut away, parts sponged, and tampon introduced. Clamps were removed at the end of seventy-two hours. Temperature immediately after the operation 96.2°; subsequent progress normal; duration of operation thirty minutes. I have been informed that this patient has since developed cancer of the breast.

CASE XVI.—*Cystic degeneration and prolapsus of the left ovary.—Double hydrosalpinx.—Removal of the appendages.—Death.*—Alice J., æt. 28 years, entered the hospital February 23, 1889. She had been a frequent inmate of the house, having been treated for drunkenness. In one of her attacks she jumped from the second story window and fell in the basement-area; to this occurrence she attributed her present difficulty. The left ovary was as large as an ordinary apple and situated behind the uterus; both tubes could be recognized as enlarged.

Operation was done March 9, 1889, in the clinic. Patient displayed marked and unusual shock; temperature 96°, but reached normal about nine hours later, and gradually increased without abdominal pain or tenderness until it reached 105.4°, just before her death on the third day. Autopsy disclosed a few drops of dirty serum in the peritoneal cavity. The kidneys were fatty; it was due to this condition, as a result of the chronic alcoholism, that the fatal termination took place.

CASE XVII.—*Pyo-salpinx.—Removal of the appendages.—Recovery.*—Carrie P., æt.—years, was found in the wards of the hospital on entering upon duty January 1. She had been married three years; never been pregnant; suffered for a number of weeks with severe pain in the pelvis, which has been increasing in severity. A mass was felt posterior to the uterus, elongated in shape, evidently a distended and inflamed tube; pyo-salpinx was diagnosed and the patient advised to have it removed.

Operation, January 18, 1890, in the clinic. Left tube and ovary highly inflamed but free of pus; right completely encircled the brim of the pelvis, was distended and filled with pus; it was so adherent that it had to be torn off throughout its entire length. After careful irrigation the wound was closed. The patient did well and the wound completely united. She had no untoward symptoms until after the removal of the sutures, when an abscess formed in the wound; this continued for some weeks before it completely healed. This patient presented herself at the clinic of the Medico-Chirurgical Hospital suffering in the rectum after each evacuation of the bowels, and continuing for hours subsequently. It was found to be due to a fissure of the anus, which was cured by stretching.

CASE XVIII.—*Volvulus.—Extensive adhesions.—Abscess cavity.—Removal of left ovary and tube.—Section five weeks before for peritonitis.*—Maud H., æt. 21 years, a book-keeper, entered the hospital December 9, 1888, and underwent an operation later for peritonitis. The abdomen had been opened, a lot of lymph removed, and the wound closed without drainage. The patient did fairly well for a few days, when her temperature became somewhat elevated, and subsided with the rupture of an abscess in the abdominal wound.

Five weeks later symptoms of obstruction were apparent in stercoraceous vomiting. This had continued twenty-four hours before she was brought to my notice, and then late at night. The following day the abdomen was reopened; the opening was made through the old cicatrix, in which there was two points, then was discharging pus. The intestines were found matted together, so that over a yard of small intestine had to be forcibly liberated from extensive adhesions. The muscular coat was torn through at a number of points; a distinct twist was found in the small intestine, which was readily overcome by separating the bands of adhesions. On the right side an abscess cavity was opened and emptied; on the left an enlarged ovary and the corresponding tube were removed. A drainage tube was inserted and the wound closed after carefully paring the granular edges corresponding to the wound sinuses.

The temperature shortly after the operation was 96.2°. Reaction set in, temperature went up to 99.2°; at 11 P. M. again down to 96.3; on the third and fourth days it was continuously subnormal; on the seventh day it reached 101°. The patient during this time was with difficulty nourished, as nearly everything taken by the stomach was shortly afterward ejected. The vomited matter was grayish in appearance, frequently black; the entire surface of the skin was black from traumatic purpura; the urine was a dark brown color; the stools were largely made up of bloody pus, and were excessively offensive. The temperature varied from 96° to 99° until the sixth day; from this until the eighteenth day from 99° to 101.5°. The highest temperature was on the nineteenth day, 102.2°. At this time an abscess was found at the vulva, which was opened and discharged a large quantity of offensive pus. The pulse on the latter part of the second day was 106; it had been previous to this time 128 to 158. It was again 106 on the third, and came down to 100 the latter part of the fourth day; and from this time varied from 120 to 190, the greater part of the time being over 140, until the thirty-eighth day, when it again reached 100.

The patient has entirely regained her health, excepting rather too frequent movements of the bowels. Her appearance is that of a woman in good health.

CASE XIX.—*Chronic ovaritis—One ovary and tube removed two years ago.—removal of remaining appendage.*—Laura R., æt. 21 years, entered the hospital January 2, 1890, suffering from severe pain in the right inguinal region. She complained of this pain as being intense and continuous and greatly aggravated at the menstrual period. I could not determine any increase of the ovary, although she complained of great pain and discomfort when pressure was made over it. Her assertion of pain was confirmed by the lady with whom she had lived for six months.

The left ovary had been removed by operation some two years before. She had returned to the hospital some six months later desiring the removal of the remaining organ, but it was declined then, as it was feared that the desire was actuated for immoral purposes. With a view to a mental impression her physician made an incision through the skin and closed it with sutures, but without the effect expected. January 31, 1890, I removed the remaining ovary and tube, both of which were enlarged; the patient experienced immediate relief from her distress. The subsequent progress was normal; the maximum temperature, 100.6°, was reached on the second day. The wound was completely healed upon the removal of the dressing, and the patient has experienced no inconvenience from her former trouble.

CASE XX.—*Pyo-salpinx—Removal of the appendages.—Recovery.*—Sarah A., æt. 24 years, entered the hospital January 21, 1890. She was transferred from the medical ward to the gynecological. The Fallopian tube on either side was inflamed and bound down; this trouble had existed for several weeks.

Operation, January 31; both tubes were found filled with pus and bound down with extensive adhesions; They were removed, the cavity carefully irrigated, a drainage tube inserted, and the wound closed with cat-gut sutures. Although the operation was not one of serious gravity, this patient experienced more disturbance during convalescence than either of the other two cases operated upon the same day. Her temperature reached 102° at 9 P. M. of the second day, and the maximum, 103°, at 5 P. M. on the fifth day. From this time the temperature gradually subsided, remaining higher than normal until the fifteenth day. There was considerable induration during this time in one broad ligament. Phlegmasia was threatened in the left leg but subsided, and the patient entirely recovered.

CASE XXI.—*Pyo-salpinx.—Extensive peri and para-metritis.—One sac torn out, the other opened and drained.*—Mary S., colored, æt. 28 years, admitted to the hospital January 20, 1890, had suffered for the last four weeks with marked distress and pain in the pelvis; this attack had come on suddenly with high temperature and severe pain. The uterus was imbedded in a mass of exudation involving the broad ligaments. This exudation could be felt above the brim of the pelvis, through the abdominal walls, presenting a condition formerly described as peri-metritis.

She was operated on January 31. The uterus, ovaries, tubes and intestines were so matted together that it was impossible, at first, to outline and determine the relation of the various parts. The finger was pressed into the mass at the point where we should expect the fundus of the uterus, and this used as a land-mark to enucleate the tubes and ovaries from the intestines. A pus-sac was torn out on the right side; the left was situated low down in Douglas's pouch, was a thin walled sac, and closely adherent to the rectum. It was torn open, the cavity curetted with the finger and the drainage tube inserted into it. The parts were so friable that a ligature could not be applied, as there was considerable oozing; the bleeding surfaces were brushed with a sponge wet with a solution of the ferric sub-sulphate. The wound was closed with cat-gut and the cavity of the abdomen kept filled with a solution of boro-glyceride by irrigating it every four hours.

The temperature of the patient immediately after the operation was 96.2°. Several times during convalescence the temperature fell below normal; on the twelfth day it was 96.4°. The maximum temperature was 100°, reached on the twenty-first day. The patient has fully recovered her health and expresses herself as feeling well.

CASE XXI.—*Appendages removed two years ago.—Secondary section.—Extensive intestinal adhesions.—Suture of the intestines.*—Catherine M., colored, æt. 36 years, native of Delaware, admitted to the hospital February 8, 1890. She had undergone an operation a year ago for removal of the ovaries and tubes, the indication for which was not definitely known. No infiltration could be determined, but as the patient continually complained of pain in the one region, it was determined to open the abdomen and ascertain the cause.

Operation done March 6. There were no adhesions between the intestines and the anterior parieties. A number of bands of adhesions were found between the intestines, uterus and stumps of the pedicles. These bands had been drawn out by the peristaltic action of the intestines, and were the cause of the distress which she suffered; they were torn through with some difficulty, and in one place the gut was torn open, requiring that it should be sutured. A drainage tube was inserted and the cavity treated wet.

The temperature following the operation was 96.2°, from which she rallied in a few hours. Maximum temperature was 100°, occurring on the second and fifth days. The patient entirely recovered from the distress she had suffered.

CASE XXIII.—*Epithelioma uteri.—Vaginal hysterectomy.*—Louisa H., æt. 41 years, was sent to the hospital by Dr. Kobler to undergo an operation for the relief of apparent malignant diseases of the uterus. She had been suffering for a number of months from uterine hemorrhage, attended with discharge of small masses of tissue and with considerable pain. The external surface presented a granular appearance; the uterus was freely movable, with no involvement of vagina or broad ligaments.

The uterus was removed March 20, 1890. The broad ligaments were secured by clamps. Duration of the operation fifteen minutes. Temperature after operation 96.6°; on the second day reached 101°; from this time continued between normal and 100.2° until the fifteenth day, when it reached 103.2° and continued high for one week. The patient has fully recovered.

CASE XXIV.—*Pyo-salpinx.—Removal of the appendages.*—Fanny R., æt. 30, entered the hospital suffering with pain in the abdomen. A mass could be distinguished passing around the brim of the pelvis to the left side; this, from the history, size and shape, was diagnosed as pyo-salpinx.

Operation in the clinic March 29, 1890. The right tube was adherent throughout its length and was considerably enlarged. Both appendages were removed and a drainage tube inserted. Convalescence normal, but later the patient had a redevelopment of an old lung trouble, which kept her confined for some weeks. She has since fully recovered.

This series of cases comprises:

Ovariotomy, 1; hysterectomy, supra-vaginal, 2; removal of appendages (both sides), 12; removal of appendages (one side) 2; nephrectomy, 1; section exploratory, 1; section (secondary) volvulus, 1; section (secondary) adhesions, 1; hysterectomy, 2.

Four patients died:

Nephrectomy, 1; hysterectomy, supra-vaginal, 2; removal of appendages, 1.

Eight patients were operated upon in the clinical amphitheatre (1, 2, 3, 13, 14, 16, 17, 24) with two deaths (2 and 16), neither of which could be attributed to that cause.

Cases 1 and 3 were done under the spray; the other cases without antiseptic precautions, farther than having the room sprinkled with a sublimate solution the morning of operation. Every precaution as to cleanliness was observed.

Hysterectomy, supra-vaginal.—The patients (3 and 4) upon whom this operation was performed were poorly fitted for it; one had calcareous degeneration of the valves of the heart, coats of the vessels and of the tumor; the other, sacculated kidneys, leaving but little of the secreting tissue undestroyed. Much valuable time, however, was lost in case 3 in our efforts to control hemorrhage by the wire. Later experience has demonstrated that these cases are more successfully treated by the use of a clamp and extra peritoneal treatment.

Case 5 unfortunately, lived too short a time to fully demonstrate the value of the operation in the treatment of her condition. The improvement, however, was far greater than under any other method of treatment to which she had been subjected.

Case 6 is now confined in the asylum at Norristown. She has, I believe, been included upon the list of those who have become insane after this operation; but, as she had been insane for a number of years before with marked exaggeration of all her symptoms with each period, and an uninterrupted lucid interval of one year followed, it seems quite reasonable to judge that had the operation been performed earlier she would have been permanently cured.

Case 11, the abdomen was closed without removal of the appendages, because the operation of tearing up the adhesions seemed a formidable task. Later experience has demonstrated to me its feasibility, and that, in such cases, the removal of the organs is the only certain method of removing the unfavorable symptoms.

Case 13 demonstrates the importance, in all cases, but particularly in specific cases, of exercising the greatest care in the management of the bladder. When possible, the use of the catheter should be avoided; when used, the vestibule should be carefully cleansed; the instrument should be scalded out, be in good condition, and in the intervals be kept in antiseptic solution.

In cases 18, 21 and 22, the abdominal cavity was kept filled through frequent irrigation with a solution of boro-glyceride. This fluid keeps the coils of intestines separated; favors peristaltic action; decreases the danger of unpleasant adhesions, and favors the reformation of peritoneum by granulation. In the earlier operations internal ligation was done with silk, while silk, silk-worm, gut or wire was used for sutures. In all the cases of the last year chromaticized cat-gut has been used, both for internal ligation and external suturing. The silk ligature in pus cases or where drainage is used is liable to become infected, and then a fistula remains until the ligature is discharged. The early absorption of the cat-gut precludes this.

A REPORT OF TWENTY-ONE LAPAROTOMIES IN THE PHILADELPHIA HOSPITAL.

By BARTON COOKE HIRST, M.D.

The laparotomies performed were of the following nature:

One was for a large intraligamentary cyst; six were oöphorectomies; two were for varices in the broad ligament; one was an omphalectomy; two were exploratory incisions; two were for diseased tubes; two for an abdominal fistula; one for septic peritonitis; one was a myomectomy; one was for pelvic peritonitis; one for pelvic abscess; and one for double ovarian abscess.

Among these patients there was but one death, and that not due to the operation. It was in the midst of the influenza epidemic of last year. The woman had had quite a severe attack of the prevailing disease, with a high temperature and a severe bronchitis. At the time of the operation there had been no fever for three days, and she seemed perfectly well except for a slight cough, but the ether undoubtedly determined an attack of pneumonia, which manifested itself on the day after the operation; involved, finally, both lungs with the pleura and proved fatal on the tenth day.

The provision for abdominal surgery in the gynæcological department of the Philadelphia Hospital is excellent. A large room on the gynæcological floor is set aside for the purpose, which can be quite isolated; has excellent light, is bare of fixed furniture, and has such ample supply of steam heat pipes that the temperature even in winter can be raised to a high point. I usually endeavor to have it over 85° Fahrenheit, for I know by experience, that a prolonged abdominal operation may be done at this temperature without serious shock, which, done at the ordinary temperature of a room, would be followed by dangerous if not fatal depression.

The results of laparotomies done in the special operating room have been much better than in the cases operated upon in clinic; and, notwithstanding the rather general movement at present in favor of doing these operations in a general clinic room, individually, I never would consent to subject a patient to the added risk which is undoubtedly entailed by the surroundings of a clinic amphitheatre, especially in the Philadelphia Hospital. I have seen a young woman, after an operation in the clinic room for removal of tubes and ovaries, without adhesions or any complications, die of septic peritonitis, which I am certain would not have occurred had the environment of the operation permitted of asepsis. One fatal case of this sort must of course outweigh any number of successes.

A brief record of the twenty-one abdominal sections may be of interest to those engaged in this work.

Abdominal section for intraligamentary cyst.—A young girl of twenty, with an abdominal tumor as large as a pregnant uterus at term; had been growing for a year; appeared first on the right side, but now occupies the median line. Fluctuation apparent on abdominal and vaginal examination; the latter reveals the uterus, not much enlarged, pushed to the left and crowded down in the pelvic cavity.

Diagnosis: ovarian cyst on right side. Operation showed the cyst to be intraligamentary and unilocular. Its removal was difficult; indeed, a portion was left behind deep down in the pelvis, but the secretory surface was well seared. The patient left the hospital in three weeks, went home to the country, and, I was told, led a fast life. Almost a year later she died of pelvic abscess, which I have no doubt was the indirect result of the operation. I endeavored to persuade her to return to Philadelphia for another operation, but without success.

Oöphorectomies.—Three of the operations were done for fibroid tumors. One of these was exceedingly difficult, so much so that hysterectomy would have been easier; the operation, however, was concluded and the result was good. The remaining three operations were done for pain, and, much as this indication has been abused, these operations, I believe, were justifiable.

The first of them was performed on a young woman who had been delivered in the Maternity Hospital three months before. She had ever since her transfer from that institution to the Philadelphia Hospital been confined to bed on occount of great pelvic pain, located mainly in the left ovarian region. The girl was in the medical wards, where she had been sent on account of incipient phthisis. The lung disease was rapidly growing worse from her close confinement to bed. With the idea of relieving the girl's pelvic pain, and allowing her to leave her bed and go out in the open air, an exploratory incision was undertaken at the request of the physician who had her case in charge.

On opening the abdomen the left ovary was found enlarged; a fact which could not be demonstrated by the vaginal examination. On the other side the uterine appendages were healthy. The left ovary was removed along with the tube, and the girl made a good recovery from the operation. She was entirely relieved of all her pelvic pain, and was enabled to go about in the open air to the improvement of her general condition.

The second case was that of a young woman upon whom oöphorectomy for pain had been performed two years before by another operator. Since the first operation the girl had had increased menorrhagia, and was in a wretched condition generally when she came under my charge. She gave a history of convulsive attacks at every menstrual period, but these, I imagine, were hysterical. As she had been through every form of gynæcological treatment without benefit, an operation was advised and accepted.

On opening the abdomen there was discovered upon one side at least a quarter of an ovary with four stout ligatures tied around it. This was removed and a single delicate ligature placed well down in the broad ligament. The woman made a good recovery from the operation, and I saw her some eight months afterwards, when she gave me a most satisfactory account of herself. She had had no more pain since the second laparotomy, and had been able to earn her living by hard manual labor. In appearance she was quite another creature.

The third case was that of a young girl sent to me by Dr. Oliver, who had been treating her eyes. She was a very poorly developed individual, physically, and gave the history of a late establishment of menstruation and of a very infrequent return of it; at the menstrual periods, however, even though there was no bleeding, the girl experienced great pain, which so undermined her general health that she was unable to earn a living.

An examination showed an infantile uterus, and on either side of it enlarged and excessively sensitive ovaries. As everything in the way of gynæcological treatment, including electricity, had been tried on this patient for months, abdominal section was advised and readily accepted. The ovaries and tubes were removed without difficulty, and the former found to be larger than common, one of them containing a corpus luteum quite as large as that commonly called the "yellow body of pregnancy," showing that while ovulation took place in this individual in the most vigorous fashion, there was no accompanying menstruation to relieve the monthly congestion of the pelvic organs, and the girl's health suffered greatly in consequence.

I have followed the course of this case for more than a year since the operation, and can report the greatest benefit from it. The girl now earns her living in a shop where she is obliged to keep her feet the greater part of the day. Her general health is good, her eyes are improved, and the pelvic pains, which formerly incapacitated her for all work, have almost entirely disappeared.

Varices in the broad ligament.—Two cases of this nature were operated upon during the same term of service. One presented every feature of a ruptured tubal pregnancy; indeed, a differential diagnosis was practically impossible until the abdomen was laid open and the interior of the pelvis inspected.

The woman gave a typical history of extra-uterine pregnancy, with the seizure of shock and exhaustion on the day before I saw her. She stoutly denied, however, the possibility of impregnation. On opening the abdomen about a pint of blood was evacuated and a number of clots picked off from the intestines. The hemorrhage came evidently from a ruptured vessel in the broad ligament. There was a rent in this structure beneath the tube into which one could put the point of a finger; under this there lay a clot. The tube itself was not altered, nor was the ovary. The blood was evacuated from the abdomen and the clots cleared out, and a copious intra-abdominal douche given. No ligature was placed on the broad ligament, as hemorrhage had evidently entirely ceased. There had been no fresh bleeding for twenty-four hours at least. The woman made a perfect recovery and left the hospital in a few weeks.

The second operation was undertaken for a pyo-salpinx. The woman gave a history of having arisen on the day following her last confinement, and having from that time to the present done heavy housework continuously. There was an obscure history also of gonorrhœal infection. The woman was brought to the hospital on account of an abortion, and on examination there was found behind and to the side of the uterus a soft tumor of considerable size and exquisite tenderness. The examination, although conducted with the greatest care, lighted up a sharp attack of pelvic peritonitis; when this had subsided an abdominal section was made. The tubes and ovaries in this case were found healthy, but in the right broad ligament there was a tumor as large as a hen's egg, adherent by fresh peritoneal exudate to surrounding structures and giving a cystic feel. It looked so precisely like a congested loop of intestine that the ligature was placed under it with many misgivings; in fact, before tying the thread I made an incision into it, half fearing that I would expose the lumen of the bowel; instead of this a profuse outpour of blood followed the cut. The ligature was tied and the tumor cut off, when it was found to consist of enormously enlarged veins, into some of which one could insert the tip of the little finger. This woman made a good recovery and was discharged from the hospital, cured.

Omphalectomy.—This operation was undertaken for a large umbilical hernia, the covering of which was so thin that rupture was imminent. The woman had also a uterine fibro-cystic tumor of quite a large size. It was determined to operate upon the hernia, and, if it were feasible, to remove the tumor through the abdominal opening. The covering of the hernia was snipped with a pair of scissors and then torn through its whole length. The omentum and intestines, which were adherent to the rim of the opening, were freed and dropped into the abdominal cavity. It was found that the removal of the tumor would be a very difficult operation, and as the woman was in no wise a sufferer in consequence of its presence, its removal was not attempted. The peritoneum was united by a running catgut stitch, the rim of the umbilical opening was freshened and lengthened up and down, and then carefully approximated. The wound healed favorably, and while the woman was under our observation, a period of more than two months, there was no sign threatening a return of the hernial protrusion. There has been no opportunity of learning the subsequent course of this case.

Exploratory incisions.—One of these operations was done upon a woman in the sixth month of pregnancy, who for two months before had been confined to bed with her knees drawn up on the abdomen, and with intense pain referred always to the right iliac region. There had been during this period elevations of temperature at irregular intervals; there was a history also of gonorrhœal infection. As the uterine appendages were lifted out of the pelvis, vaginal examination revealed nothing; but from the history of the case and the symptoms, I suspected a pyo salpinx; while my colleague, who examined the case carefully with me, believed it to be appendicitis. An operation was finally decided upon after a consultation, and with the full knowledge and consent of the patient.

The abdomen was laid open by a long incision, and everything within its cavity discovered to be perfectly healthy. The wound was closed with care to secure accurate approximation, and the woman made a good recovery, went to term and was delivered of a healthy infant without complications. Undoubtedly, this case was one of pure hysteria, as we found afterward that the woman had been in the habit of simulating symptoms in various wards of the Philadelphia Hospital from time to time.

The other exploratory incision was done upon an Italian woman, from whom no history could be obtained, but who had high fever when she was brought into the hospital, and a firm abdominal tumor occupying the left side, extending around on the flank and reaching almost to the median line in front and half way up to the umbilicus. An incision through the abdominal walls in the median line showed this tumor to be retro-peritoneal; it was suspected to be a lumbar abscess.

The abdominal incision was closed, a trochar plunged into the tumor at a point where the exploratory incision had shown me that I would not pierce the peritoneal cavity, and a large quantity of foul-smelling pus was evacuated. The puncture was enlarged with a knife and a drainage tube inserted, and the abscess cavity well washed out. This woman made a slow but ultimately a perfect recovery, and was discharged from the hospital, cured.

Diseased tubes.—The first of these operations was done upon a young girl who had been under my professional care for three years. I had delivered her by a high forceps operation with much difficulty. Six months afterwards I performed trachelorophy; some months after that I treated her during a sharp attack of gonorrhœa, and after her apparent recovery watched the development of pelvic inflammation with all the symptoms of pyo-salpinx. As the girl was constantly growing worse an operation was decided upon.

It was found on opening the abdomen that only the left tube and ovary contained purulent matter. The right tube was distended somewhat and adherent, but contained only clear serum. The left tube and ovary were extirpated with great difficulty. In the course of the operation there was profuse hemorrhage from the base of the left broad ligament, which was only controlled after the application of two strong ligatures, passed as deep as possible and tied in the dark. The girl made a fairly good recovery from the laparotomy, but an abdominal fistula remained; she left the hospital with this still discharging. After some months she returned to me much run down in health, with great pain in the left iliac region, and with a profuse discharge of pus from the fistulous tract. She was again placed in the hospital and I made an attempt to cut down upon the fistula some two inches to the left of the median line. As the incision reached the peritoneum, however, it was found impossible to get further, as the whole of that side of the pelvis was blocked by a large and firm exudate. While endeavoring to enlarge the incision the epigastric artery was severed and bled profusely; it had retracted beneath the peritoneum so that it was impossible to secure its end. The only way in which the bleeding could be stopped was by packing the wound firmly with gauze.

A week afterward an opening was made through this incision into the fistulous tract, and an effort made to curette it thoroughly; this failed to accomplish anything, and the fistula discharged as freely as ever. After waiting some two or three months more to give the tract an opportunity to close spontaneously, an abdominal incision was made in the median line and the pelvis carefully explored, to find, if possible, some cause for the persistent fistula; this operation likewise failed. The wound healed, however, and the girl left the hospital. Two weeks afterward she came to my office with a large silk ligature which had been discharged spontaneously from the fistula. On the following day the second ligature came away, and now the fistula is permanently closed.

Septic peritonitis.—A young girl was brought to the hospital with high fever and the physical signs of pelvic peritonitis. It was impossible to obtain a reliable history, but there was reason to suspect both a neglected abortion and gonorrhœal infection. This girl was carefully watched and treated, but as she continued to grow rapidly worse and was in evident danger of death, an abdominal section was determined upon and undertaken. Intense pelvic and general peritonitis was discovered, with a large accumulation of pus in the right tube and the right side of the pelvis; large pieces of inflammatory lymph were dug out. The abscess cavities were opened as far as possible, their contents evacuated, and the abdominal cavity well flushed; the operation resulted in very decided relief. The patient's temperature was reduced and she was in a fair way to make a perfect recovery, when some six weeks afterwards, just as my term of service was completed, she developed symptoms of obstructed bowel, for which my successor, Dr. Montgomery, operated with success.

Myomectomy.—This operation was done upon a woman who had been delivered six weeks before in the Maternity Hospital. She had gone through an attack of septic fever from an infected endometrium; as this was conquered, however, she failed to recover, and exhibited a low but continued fever, with pelvic pains. Abdominal palpation had detected, during pregnancy, large fibroid tumors attached to the womb. These were found, six weeks after delivery, nearly blocking up the pelvis and fixed. As inflammatory section of a septic nature in these fibroids was feared, and as a violent outbreak was expected at any time, an operation for their removal was determined upon; it proved to be remarkably easy. The tumors had good pedicles, which were ligated and cut through. The woman had, two days after the operation, a normal temperature for the first time in six weeks, and made an uninterrupted recovery.

Abdominal section for pelvic peritonitis.—This patient I had attended two years before for septic peritonitis following abortion. She was desperately ill, but recovered without being operated upon. She came to me during my present term of service with the story that she had been examined in the Philadelphia Dispensary and in the Women's Hospital, and that in both places she had been told there were "two tumors alongside the womb, which ought to be removed at once."

On examination I found the uterus firmly fixed, and a large sensitive mass on either side of it. I agreed with the statements already made to the girl, and made up my mind I would find a double pyo-salpinx. With this idea and expecting dense adhesions, I made a long incision. To my surprise the tubes and ovaries, though adherent, were otherwise healthy. The latter were imbedded in large masses of exudate. The adhesions were broken, the womb placed in good position, the abdomen flushed, and the wound closed without drainage. Six weeks later the woman came to my office; the uterus was in good position, freely movable, and the "tumors" had entirely disappeared. Menstruation had occurred once since the operation without pain.

Abdominal section for pelvic abscess.—This patient had been operated upon a year before (varices in right broad ligament). She returned to the hospital run down in health, with pain in right iliac region, and the statement that the day before there had come "a gush of matter out of the womb."

Examination showed a tender boggy mass on right side. Operation was complicated by dense adhesions. Abscess was discovered low down on right side ; evacuated and walls enucleated. The patient made a good recovery, and left the hospital in a month free from pain and vastly improved in general health.

Abdominal section for double ovarian abscess.—This patient was a colored woman, who gave a history that, though indefinite, pointed to extra uterine pregnancy. She had borne a child some time before ; menstruation had returned shortly after and recurred regularly till the last period, when it was missed. At the next period, when I first saw her, she was flooding profusely and had violent pelvic pains.

The examination showed a large, sensitive tumor to the right of and behind the uterus. To the left the signs were indefinite, for a deep examination was impossible on account of pain. On opening the abdomen two large ovarian abscesses were discovered. In spite of dense adhesions, tubes and ovaries were removed entire. The former were much thickened, but contained no pus nor other fluid. Abdomen flushed and drained for forty-eight hours. Perfect recovery, without complications.

THE PRACTICAL VALUE OF MODERN METHODS OF ANTISEPSIS IN THE CARE OF INFANTS, INCLUDING THE PREPARATION OF INFANT FOODS.

BY EDWARD P. DAVIS, M.D.

The application of the principles of antisepsis has become so general that scarcely a department of medicine has failed to profit by them. They are especially beneficial in hospital practice where, by reason of the aggregation of patients, general infection is comparatively easy and frequent. My experience in the care of young infants in the Philadelphia Hospital has exemplified the truth of this statement.

In the preparation of infant food, the most important advance recently made has been the sterilization of milk. In the hospital we obtain a very fair sample of milk, furnished under, at least, good general precautions, and tested and examined before acceptance; it is liable to fermentative decomposition, however, as is all milk.

The wards of the hospital where infants are kept are large, well ventilated in summer, and as little exposed to the disadvantages of a hospital as possible. The care given to the children is by trained nurses, whose faithfulness and intelligence leaves little to be desired. The greatest obstacles to contend with in these cases are the vicious stupidity of many of the mothers, the dreadful condition in which many of the children are brought to us, and the fact that at certain periods of the year it is difficult to obtain the best air and frequent changes of air for the patient.

The mortality rate among foundling children in this hospital has varied from 100 per cent. down. When epidemics have been violent very high mortality has several times been reached; while on other occasions mortality has sunk, during the most unfavorable period of the year, to less than 20 per cent. of all infants.

The introduction of sterilized milk as a food has resulted in greatly diminishing the cases of acute gastro-intestinal catarrh, although it is hard to recognize that it has had any direct influence in cases where extensive atrophy of the glandular apparatus of the child's digestive tract was already present when the patient came under treatment; indeed, so rare have acute cases of gastro-intestinal trouble come to be, that cholera infantum is almost never seen.

Sterilization has been effected by a very simple apparatus, which consists of a large tin box, containing a tray with a perforated bottom, which sits upon shoulders about two inches above the bottom of the box. The bottles employed are ordinary medicine vials, of 4 to 6 ounces capacity; they are stoppered with cotton, and when filled with the mixture which it is proposed to sterilize, they are placed upon the tin tray, two or three inches of water having already been poured into the box. The whole is then set upon the fire, and the water is allowed to boil one-half hour; the bottles are then removed, allowed to cool, placed in the ice chest, and heated slightly again when the child is fed; the only nipple employed is a plain rubber nipple without a tube, which is kept soaking in a solution of boracic acid.

Our effort has been to find some modification of milk which would resemble closely mother's milk, and which could be sterilized. Laboring under the disadvantage of not having cream, we have been forced to give fat by means of cod liver oil. A palatable and fairly successful mixture, which we have employed, has been, for 4 ounces, as follows: milk and water, each 2 ounces; bicarbonate of soda, 5 grains; dried granular extract of malt, 1 teaspoonful; this may be sterilized, and has proved in many cases an acceptable and beneficial food.

With other patients it has been necessary not only to sterilize the milk, but also to partially digest it by the use of peptonizing materials. In still other cases, especially when acute disease was present, all milk had to be discarded, and the patients were fed upon whiskey and water; barley water; and a mixture of barley water, white of egg, sherry wine or whiskey, which we have found very useful.

In addition to the effort to secure antisepsis in sterilized food for infants, antisepsis has been practised with good results in every way in the general care of young children.

The diapers of young children suffering from intestinal disorders should be boiled, and then wrung out in a dilute solution of bichloride of mercury—1–5000 has been satisfactory. All excreta should be removed as soon as possible, the diapers not allowed to remain lying about, and every article which is used about the child should be absolutely clean. The use of boracic acid solution for cleansing the child's mouth and eyes is also an efficient antiseptic precaution, which greatly reduces the number of cases of thrush and of ophthalmia.

The wards in which infants are kept should be scrubbed and fumigated quite frequently, and every precaution taken to remove dirt and decomposing matter. The infant's bed and crib should be kept thoroughly clean, the mattress removed as often as necessary, and destroyed after it has been used by an infectious case.

In the treatment of the digestive troubles of infants, antiseptics have a most useful and important part to play; administered by the mouth, calomel, naphthaline, salol and alcohol are most useful. The local antiseptic treatment of the digestive tract of the child consists in irrigating the stomach where the existence of masses of fermented food and mucous secretion is diagnosticated, and also in irrigating the intestinal tract by means of a soft catheter and a fountain syringe, with an antiseptic solution. For irrigating the stomach, sodium salicylate, 1 grain to the ounce, has been used to advantage; for irrigating the intestine the same solution may be employed, or thymol, 1–2000, or bichloride of mercury, 1–10,000.

The greatest benefit has followed this irrigation, and combined with the administration of intestinal antiseptics by the mouth, it has furnished a prompt method of controlling gastro-intestinal inflammation. Nothing is comparable with alcohol as a systemic antiseptic, which children take with great freedom and benefit in whiskey and water or brandy and water.

The employment of these methods of treatment has resulted in stamping out epidemics of cholera infantum or acute gastro-intestinal disease; has greatly prolonged the lives of children suffering from marasmus, and in some cases has enabled these children to rally and recover. We have not, as yet, seen any but a palliative influence exerted by any methods of treatment in cases of progressive atrophy of the stomach and intestines; and in this respect antiseptics compare favorably with other agents, in that they retard a fatal issue, and frequently tide the patient over and give time for a favorable change to occur.

THE TREATMENT OF POSTERIOR ROTATION OF THE OCCIPUT.

BY EDWARD P. DAVIS, M.D.

Recent clinical and laboratory investigations have given obstetricians abundant reason to believe that the occiput, during labor, is situated much more frequently posteriorly than has been supposed. As improvement in the education of physicians in obstetrics has become general, diagnosis of the positions has become more accurate. Probably owing to this there has been noted an increased frequency in the posterior rotation of the occiput.

We cannot suppose that labor is radically different at the present time from what it formerly was, nor can we imagine new forces suddenly developed in the mechanism of labor; and the rational conclusion seems to be that a posterior rotation of the occiput is far more common than was formerly supposed. If we adopt the German nomenclature of all positions, we shall the better understand what is called an occipito-posterior position, and also the factors which produce it.

Assuming two positions for occipital presentations, we have the first, in which the back of the child and the occiput are directed to the left side of the mother; the second, in which the occiput and the back of the child are directed to the right side of the mother. In the great majority of cases, as the head descends and labor proceeds, the occiput turns toward the pubic joint.

The factors that produce rotation of the occiput may be said to be as follows: first, a normal proportion between the size of the fœtal head and body and the genital tract of the mother; second, the inclined planes at the sides of the bony pelvis have an influence, however slight, upon the rotation of the presenting part; third, the resistance which the head meets as it impinges upon the pelvic floor and the sides of the pelvis, both form the most important factor in anterior rotation; and lastly, the position of the child's head, with reference to its trunk, is an important factor in producing the phenomenon of rotation.

We may infer something regarding the relation and importance of these factors in producing rotation, by observing the period of labor at which each occurs.

It not infrequently happens that the occiput descends posteriorly until just before the head emerges, when during the last uterine contractions the occiput suddenly turns to the front; this would seem to indicate that the most important of all factors in producing rotation is the resistance of the pelvic floor, the uterine and abdominal muscular forces continuing to act. The fact that rotation occurs so late in labor explains the apparent rarity of occipito-posterior positions, which was formerly alleged; but of late years, when examinations during labor are more frequent than formerly and more intelligently made, a posterior position of the occiput is frequently diagnosticated, which formerly would have eluded observation.

If we adopt still further the more simple explanation of the mechanism of labor, we shall, in common with German nomenclature, cease to speak of these cases as occipito-posterior positions, but rather as cases in which anterior rotation of the occiput failed.

This conception seems to us more logical and simple than the elaborate and useless complications of the mechanism of labor, which Baudelocque and the French school and their American disciples so long advocated and taught. If we accept, then, this theory of labor, we shall obtain from it indications for treatment, when occipito-posterior rotation occurs.

With a view of studying the causes which produce failure in the anterior rotation of the occiput, and also the results in such cases, we have examined the records of the Philadelphia Hospital for a period of forty-one years, embracing 170 cases. Pelvimetry was practiced upon only a portion of these cases, and hence we lack data which might throw light upon many of them. In 42 of the number we have the records of the examination of the pelvis, and can appreciate any influence which pelvic deformity has exercised in producing this abnormal mechanism of labor.

The ages of the patients, the question as to primiparity or multiparity, and the final rotation or lack of rotation when the pelvic floor was reached, are given in the following table:

Age.	Cases.
15 to 20	38
20 to 25	80
25 to 30	27
Age not given,	25
Total,	170

	Cases.
Primiparæ,	91
Multiparæ,	79
Total,	170

ROTATION.

	Cases.
Rotated,	147
Unrotated,	23
Total,	170

PELVIS.

	Cases.
Normal,	18
Justo-minor,	18
Justo-major,	2
Simple flat,	2
Flat rachitic,	2
Total,	42

In 53 of these cases an effort has been made to study the relative proportion of the child and the birth canal of the mother, and the presence or absence of final rotation has been noted.

Regarding the length of labor, we have notes of 161 of these 170 cases, whose results are given below. Regarding the most frequent position in which the occiput descended, the right occipito-posterior was observed more frequently than the left.

In the treatment of these cases, spontaneous delivery occurred in 146; the forceps was used in 22, and failed to deliver the child in 2 cases, which were completed by version. Craniotomy was not found necessary in these cases.

PROPORTION OF CHILD TO MATERNAL PARTS.

PROPORTIONAL.

	Cases.
Rotated,	27
Unrotated,	3
Total,	30

DISPROPORTIONAL.

	Cases.
Pelvis small, rotated,	4
" " unrotated,	4
Pelvis roomy, rotated,	1
Child small, rotated,	2
" " unrotated,	2
Child large, rotated,	7
Total,	23

LENGTH OF LABOR.

	Cases.
Labor tedious,	50
" normal,	84
" short,	27
Total,	161

Regarding the mortality and morbidity of the mothers in these cases, a careful examination of 130 shows one maternal death from sepsis, following the use of forceps. Statistics of the remaining 40 were not obtained, as they were transferred for their convalescence to other wards, but no record of their death exists, and therefore they are recorded as recovered, but without a statement as to whether their recovery was normal or not.

There is no record of a severe complication in any of the mothers during the puerperal state among these patients.

The fœtal mortality of these cases was 2; one child weighing six pounds thirteen ounces, born after labor in right occipito-posterior position, and still-born; the other, a still-born child, weighing ten pounds, delivered in right occipito posterior position by the forceps. So far as morbidity is concerned, 3 children were born asphyxiated, but were revived.

The examination of these cases leads us to conclude that occipito-posterior positions are much more frequent than commonly supposed, and that the vast majority of them rotate spontaneously. Such cases are more frequent in primiparæ than multiparæ, and slightly more frequent in abnormally shaped pelvis. The disproportion between the size of the child and the size of the birth canal exercises an influence, but not a predominating influence in preventing rotation. Thus, in fifty per cent. of cases where such disproportion existed, anterior rotation occurred.

So far as length of labor is concerned, in half the cases it was normal, sometimes tedious, and rarely shortened. The small number of cases requiring the use of the forceps or version is interesting, as illustrating the frequency of spontaneous rotation; the low mortality and morbidity of these cases is also of interest.

It is of value to compare the results of recent studies in the posterior rotation of the occiput with facts already given; thus, Bataillard (Annales de Gynecologie, August, 1889) has collected 400 cases of occipito-posterior positions; 353 of these cases became occipito-pubic positions by spontaneous rotation. In primiparæ, when the child weighed from five to six pounds, labor was two hours longer than in anterior positions; from six to seven and one-half pounds, it was three and one-half hours longer. With multiparæ, labor was shorter when the fœtus was comparatively large.

The treatment employed when rotation failed was the introduction of the antisepticized hand to effect rotation; this usually dislodged the head from the sacrum, and if further rotation failed the forceps was applied to the sides of the head and rotation was completed. Tarnier's forceps was especially useful in these cases. The maternal mortality was 0.5 per cent.; of 660 contrasted cases of occipito-anterior positions, 0.46 per cent.; fœtal mortality in occipito-posterior positions was 2 per cent.; in anterior positions, 0.76 per cent. It was necessary to apply forceps at the superior strait in 6 per cent. more cases than in anterior positions.

Winckel (Lehrbuch der Geburtshülfe, Leipzig, 1889) writes that a posterior rotation of the occiput occurs 1.26 times in every 100 vertex presentations; in the majority of cases anterior rotation occurs. The back of the child remains in the same position as in a normal occipito-anterior, by reason of the mobility of the neck; the occiput rotates behind, while the trunk remains directed toward the mother's side and slightly anteriorly. The cause of this abnormal rotation is said to be absence or deficiency of that resistance which normally stops the head and turns it to the front; thus, very strong uterine contractions may press the head too strongly against the pelvic floor, and the occiput may remain posteriorly and in a faulty position. With the patient, pressing the occiput too strongly against the side of the pelvis is a further cause, and pendulous abdomen is also a cause. The spine of the ischium may prevent anterior rotation if the head is forced too rapidly behind it.

Regarding the mechanism of these cases, Winckel distinguishes a mechanism in which the chin remains close to the chest, the obstacle to resistance being abnormally small, and the occiput escaping from the perineum; in these cases the head is rapidly delivered. If the obstacle be too large, on the contrary, the brow comes to the front, becomes wedged under the pubic arch, and the occiput passes over the perineum; the face then rotates toward one thigh of the mother as the shoulders come into the pelvis. He found that the occiput remains posterior more frequently upon the right side, a slight excess of pluriparæ was observed and a considerable excess of multiparæ.

Of 105 cases, 9 cases of contracted pelvis occurred; in one-third of these cases the obstacle which prevented anterior rotation arose from the size of the child. The most frequent complication in the mechanism of labor was prolapse of the cord or of the extremities of the child. After such labor the head has a sloping forehead, and the caput is found over the frontal bone or around the large fontanelle.

Regarding treatment, Winckel would attempt to rotate the occiput forward by a proper position of the patient lying on the side toward which the occiput is directed, or in the knee-elbow position. If unsuccessful, the patient may be placed on the side toward which the brow of the child is turned. If the child is in great danger, forceps should be used; if the child is dead, cranioclasis is indicated. In the use of forceps in these cases, traction should be made for some time slightly downward and directly outward. When the forehead is close under the symphysis, the handles of the forceps should be raised without traction, to raise the occiput from the perineum. When the occiput is born the handles are depressed, and the face is thus brought out from under the symphysis.

In this connection we may mention a manœuvre which is current in Vienna in the wards of Carl Braun and Briesky. When the forehead is under the symphysis, and the superciliary ridges are well engaged beneath the pubic bone, the grasp of the forceps may be relaxed and the handles slightly lowered; a fresh hold of the head should then be taken and the handles of the forceps raised, flexing the head over the perineum.

We have recently taken up the study of some simple method of axis traction, which should be applicable in these cases by bringing the head down while flexed, but allowing it to rotate freely to the front. A recent case was so typical in its behavior that we include its history in full.

We have recently caused to be fitted to Simpson's and Davis' forceps the Poulet tapes, an attachment which has become known to obstetricians through the monograph of Poulet of Lyons. It has seemed to us that in cases where the head remains obliquely in the pelvis, the occiput behind, that the Davis forceps, applied to the sides of the child's head in conjunction with the axis traction by the Poulet tapes, would be a rational means of bringing the occiput down upon the pelvic floor and favoring rotation. If it is not possible to apply the forceps to the sides of the child's head, we believe that the Simpson forceps may be applied to advantage to the sides of the pelvis, grasping the head as best as it may and traction made in the axis of the pelvis by the Poulet tapes.

It is of vital importance that the Simpson forceps be relaxed between tractions, thus allowing the head to rotate freely within the forceps, and making practically a new application of the forceps to the head on each traction.

In the case whose history we include, the theory of this method of delivery was put to the test, and the result will be learned by a consideration of the case, which is as follows:

M. H., æt. 36, Irish domestic, single, 1 Para., was admitted to the hospital October 16, 1889, in fairly good condition. While awaiting delivery, she suffered from numerous severe attacks of asthma, and was found to have emphysema, with some dilatation of the right ventricle. Examination of the heart revealed no valvular lesion, and examination of the urine showed absence of albumin or casts. For the relief of the asthma, grindelia robusta, nitrite of potassium and soda, and chloroform inhalations were used with some relief. During her stay in the obstetric ward, her general condition did not improve, the attacks of asthma increasing in frequency, the patient becoming anæmic, irritable and weak. About three weeks before labor, albumin appeared in the urine in considerable amount, and about a week after the legs and feet became œdematous.

Labor began Tuesday, December 24th, at 10.30 P. M., the patient coming to the maternity ward at 10.30 P. M., December 25, 1889. At this time she was weak and irritable, suffered from dyspepsia, and complained of pain in the back. The os was patulous to one finger, no presenting part could be felt, polyhydramnios being present; the uterine contractions were infrequent, of slight force, but caused great suffering; the first stage of labor lasted sixty-two hours, the general condition of things being much as described; the abdomen was enormously distended, tense, fluctuating; the fœtal heart distinctly heard low down in the right flank; no position of the fœtus could be made out by palpation; the patient became weaker, the pulse losing in volume and increasing in frequency to 115. At an unknown hour early in the morning of December 28, the membranes ruptured, and a large amount of greenish liquor amnii escaped, but the head, which presented in the right occipito-posterior position prevented the escape of all. It was now found that the bladder was full of urine, and catheterization was necessary; the head did not descend through the pelvis, which was not markedly contracted, the measurements being: spines, 23.5 cm.; iliac crests, 26.5; external conjugate, 18; right diagonal, 22; left diagonal, 21; trochanters, 28.5; circumference, 85.

The contractions of the uterus diminished in force, and at 12.30 P. M., December 28, the patient was anæsthetized with chloroform; Simpson's forceps with the Poulet tapes attached were applied, and the head delivered; the cord twice around the neck. Delivery was difficult, consuming considerably over an hour; the occiput remained posterior until just before delivery, when it quickly rotated in front.

The forceps was relapsed between the tractions to allow rotation. Double episiotomy was made, and no considerable laceration occurred. The placenta was immediately expressed. During labor the temperature of the patient had remained nearly normal ; immediately after, there was a chill, followed by a temperature of $104\frac{2}{5}$ F. ; no treatment was used, and in two hours it fell to normal.

The after treatment consisted of whiskey every two hours, creolin douches (vaginal) every four hours, and tincture digitalis four times daily ; for two days the condition of the patient improved, except for the development of a cough of moderate severity, with some mucus expectoration. Early in the morning of the third day the baby died of inspiration pneumonia ; post-mortem examination revealed extensive consolidation of the left lung ; the skull was carefully dissected, but no fracture or laceration was found.

On the morning of the fourth day the condition of the patient seemed very grave ; the temperature had ascended to 104 ; the pulse was 136 ; the respiration 35. Everywhere the chest was full of sibilant and sonorous râles, while there was a suspicious impairment of resonance at the right chest. The patient seemed very ill and extremely weak, the cough continuing in severity, the expectoration moderate in amount.

Ammonium chloride was given, tincture strophanthus, tincture nux vomica, and the vaginal douches kept up ; the patient refused all food except milk, and later, after much persuasion, took egg nog. She appeared to emaciate, and her appearance, anæmia, cough and debility, suggested tuberculosis, of which, however, no positive signs could be found.

From January 6 to 9 she improved very decidedly, but did not lose the cough, which remained severe. On the morning of the 9th of January the stitches introduced at the time of delivery were removed, and the patient was sent to the nursery. She ultimately made a good recovery, her lung symptoms entirely disappearing.

AN ANALYSIS OF ONE HUNDRED AND FIFTY AUTOPSIES UPON BRIGHT'S DISEASE AND ITS RELATIONS TO CARDIAC LESIONS, IN THE PHILADELPHIA HOSPITAL, FOR FIVE YEARS—1884-1889.

BY HENRY F. FORMAD, B.M., M.D.

The following one hundred and fifty autopsies were taken from the post-mortem records of the Philadelphia Hospital. I abstracted them with the aid of my assistant in this work, Dr. J. L. Hatch. They are all cases of typical Bright's disease, mostly diagnosticated as such during life, being selected from a total of thirteen hundred autopsies from the hospital records of five years. Many of the autopsies had been executed under my supervision and that of Dr. E. O. Shakespeare, while the rest of the cases were clinically studied and the autopsies made by the members of the hospital staff, which included Drs. Tyson, Bruen, Osler, Musser, Wilson, Henry, Curtin, Mills, Dercum and Walker.

These hospital records, although not sufficiently detailed regarding the weight of the heart and kidneys, are accurate and will serve our purpose. Each series of cases is separate and distinct, no cases being duplicated.

In the preparation or collection of these records, Bright's disease was taken as the starting point or basis. All cases of kidney affections other than Bright's disease, or those in which the disease did not present itself as fully established at the autopsy, and a few ill-recorded cases, were excluded.

The estimation of the weight of the body is all important as regards the question of the normal size of either heart or kidneys, because while a heart weighing twelve ounces may be called hypertrophied in an individual of one hundred and twenty pounds bodily weight, it may be considered of normal weight in an individual weighing two hundred pounds. My figures of the approximate weight of the body are satisfactory for this purpose, because a mistake within a few pounds (of the bodily weight) could be no definite mathematical factor; moreover, there are other more serious obstacles to the precision in calculating proportions, such as the condition of nutrition of the body and the contents of the alimentary canal.

In all statistics relating to the weight of the heart found in the literature of Bright's disease, these points, the importance of which is readily seen, have not been taken into consideration by any one in this class of studies as far as I know. The same is true of the relation of the weight of the kidneys to the bodily weight in Bright's disease.

From the given weight of an organ a satisfactory estimate of its size can be made. I found the weight of organs to be a much safer criterion and more satisfactory than measurements, the latter being made by the different observers according to various scales, methods and ideas, which are often quite unintelligible and useless. The heart muscle especially varies in thickness according to the degree of contraction, the quantity of clotted blood, and the time which has elapsed since death. The plain statement of an experienced observer as to the condition of the cavities, the walls, and the approximate weight of the heart is more valuable than all the measurements that an inexperienced and over-zealous one will present with his figures.

From the present considerations I exclude amyloid disease of the kidney; although belonging to the picture of Bright's disease, there is a marked and nearly constant apparent absence of hypertrophy of the heart. This is true as far as the small size or weight of the heart is concerned at time of death, but if it be considered that we meet with it usually in scrofulous subjects, who invariably have congenitally small hearts, the conclusion that hypertrophy of the heart is rare in this affection will be found to be an error.

The small heart of the scrofulous is subject to hypertrophy as well as the heart of the normal individual; but when the former hypertrophies to double its original size, it may not appear any larger in volume than the latter, and when, in reality, enormously hypertrophied it may barely reach the size of what we ordinarily would call a slight hypertrophy. I made some studies upon the weight of the organs, in relation to the size of the body, in the scrofulous, according to the methods of Beneke and Thoma for establishing such weights, and paid especial attention to hypertrophy in amyloid disease. I shall present these observations on another occasion.

I also excluded from the present records cyanotic induration of the kidneys; which, as is well known, is usually the consequence of cardiac disease, especially valvular. I may state here that my researches have fully convinced me that cyanotic induration of the kidney never terminates in Bright's disease, which is quite contrary to the opinion of some observers. I have reference to the long-standing passive hyperæmia of the kidneys which results in cyanotic induration of these organs, with enlargement often to double their normal size, the kidneys being hard and firm and bluish-red in color.

The alcoholic cyanosis of the kidney, another affection analogous morphologically to the last named, but different only in the shape of the organs (the "pig-backed" kidney, which I first described and demonstrated before the Association of American Physicians I also excluded.) Alcoholic cyanosis is often associated with cardiac hypertrophy, but rarely with valvular disease. It is this affection which is often mistaken on the post-mortem table for, and recorded as, acute Bright's disease. I doubt not that this lesion (the alcoholic kidney) represents the inflammatory form of Bright's disease of Grainger Stewart, which he records as being without albuminuria, without dropsy, and with large fatty livers, and which has crept now and then into the records of various observers, old and recent, as cases of acute Bright's disease. I also believe some of the sub-divisions of the "pluralists" on Bright's disease, such as the "chronic hemorrhagic nephritis without dropsy of Weigert," to be identical with my alcoholic cyanosis.

The late stage of the alcoholic cyanosis (the œdematous form), as met with upon the post-mortem table, in chronic drunkards who had been deprived for some time of alcoholic beverages, resembling much the large white kidney macroscopically, is another source of error; this lesion I have seldom seen to give rise to left-sided hypertrophy, though general cardiac hypertrophy is common.[1]

Amyloid kidney also closely resembles and is often mistaken for the large white and the fatty and contracted kidney.

Such mistakes and the omission (to be referred to later) of some authors to separate the fatty and secondarily contracted kidney from the primarily contracted or granular kidney, cripple the statistics on the subject of hypertrophy of the heart quite decidedly.

In recording my cases I have adopted the rather crude and old-fashioned nomenclature for the various forms of Bright's disease, but one which I am sure will be readily comprehended; whereas, did I use the proper technical terms, misunderstanding on the part of the reader, as to the exact form of Bright's disease meant, would be sometimes liable to occur.[2]

The classification adopted is as follows:

I. The *acute parenchymatous nephritis* (*syn.*, catarrhal, tubular, desquamative, croupous, scarlatinal, febrile, glomerulo-nephritis, acute degeneration of the kidney, acute exudative nephritis, acute diffuse nephritis) I will term *acute Bright's disease.*

II. The *early stage of the chronic parenchymatous* nephritis (*syn.* same as above qualified by "*chronic*") I will invariably call *large white kidney,* which well indicates the stage of the disease.

III. The *late or contracting stage of the chronic parenchymatous nephritis* (*syn.*, diffuse nephritis, secondarily contracted kidney, obstructive nephritis, fatty kidney, chronic diffuse nephritis with exudation) I will designate as *fatty and contracted kidney.*

IV. The *chronic interstitial nephritis* or primary contracted kidney (*syn.*, granular, cirrhotic, and gouty kidney, renal cirrhosis, atrophic, lithæmic and toxæmic nephritis, and chronic diffuse nephritis without exudation, etc.) I will call *red granular kidney,* which is an old and comprehensive name for this affection.

Among the most serious sins of nomenclature we find that the term diffuse nephritis is indifferently applied to both the fatty and contracted and the red granular kidney.

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[1] It is remarkable how infrequent Bright's disease is in drunkards. I found that inflammatory kidney lesions generally occurred more frequently in the temperate than in the intemperate. Is it the constant excess of venous blood in alcoholic cyanosis of the kidneys that makes inflammatory changes in the latter less frequent, as it does in the right chambers of the heart? (See transactions of the Association of American Physicians, Vol. I).

[2] I am not considering here the histology of Bright's disease, hence it is unnecessary to review the anatomical and histological features of the various forms of this affection; but stating the array of synonyms may prevent misunderstanding.

The reasons for a separation of these two affections as distinct forms of Bright's disease are quite obvious, and I put myself strongly on the side of those who make it, viz., the dualists.[1]

For diagnostic purposes and for prognosis it is also quite essential that the *fatty or secondarily contracted kidney* should be differentiated from the *red granular or primarily contracted kidney.* Clinically it is, I believe, well established, that in the former the onset of the disease may nearly always be traced to acute nephritis, or at least to the large white kidney; that it is liable to occur at all ages; that transitions from scarlatinal nephritis in the young are traced to the large white kidney of the adult, and to the fatty and contracted kidney of late life, while rarely to the very old; that dropsy is very common in the earlier stages; that polyuria is more rare, and albumin is seldom missed; in fact, the duration of the disease is very uncertain, a fatal termination being liable to occur at any time.

On the other hand, in the *red granular kidney,* which is common in gouty and rheumatic individuals, and is so often traced to disease of the genito-urinary tract, the initial stage is unknown, there being nothing to show that an acute inflammation of the kidney ever existed. It rarely occurs in the young, being almost peculiar to middle or old age; it may be of lifelong duration; dropsy and presence of albumin are rare, and polyuria is prominent.

Polyuria in the fatty and contracted kidney, if it occurs at all, is late; the urine may be rich in albumin, whereas, in the ever-present copious flow in the red granular form, little or no albumin is present, as is well known. This, I believe to be an important diagnostic point.

In my laboratory classes the urine examined is often from well-known clinical cases, and in many instances I have traced the albuminous (fatty and contracted kidney) and non-albuminous polyuria (red granular kidney) to the post-mortem table.

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[1] It is interesting to observe that the father of Bright's disease, also, Grainger Stewart, Dickinson, Johnson, and the English school are strictly "dualists," being reinforced by the great original German workers Virchow, Traube, Senator, and Bartels; Charcot and Cornil in France, and in this country perhaps strongest by Tyson. The French are mostly "unicists" (*i. e.*, advocates of the eventual transition of the three parenchymatous forms of nephritis into the red granular kidney), which is, however, also in accordance with the views of such prominent Germans as Frerichs, Rosenstein, Cohnheim, and Bamberger, and it appears also with the views of some of the New York authorities on the subject. Of late years "pluralists" have arisen, chiefly among the Germans, including Wagner, Weigert, and even Senator, who are inclined to ascribe every form of Bright's disease to different and independent morbid processes and causes, and place several complications of the morbus Brightii in the field as independent subdivisions of the disease.

I may be permitted to introduce the following table relating to the more important anatomical and microscopical differences between the two affections referred to, because their separation is to a certain extent a point of issue in hypertrophy of the heart and fatty metamorphosis of the cardiac muscle.

Fatty and Contracted Kidney.	*Red Granular Kidney.*
Contraction of kidney secondary.	Contraction of kidney primary.
Size seldom below normal.	Size, below normal; often reduced to one-half or even one-fourth.
Capsule adherent only in places, seldom thickened. Surface lobulated, often smooth; color, pale, mottled or yellow.	Capsule adherent, thickened. Surface granular, rough. Color, red or grayish-red.
Cysts usually large, and seldom numerous. Pelvis rarely dilated.	Cysts usually small-sized and numerous. Pelvis often dilated.
Arterial changes are rare, or not pronounced.	Arterial changes (endarteritis, or periartritis) almost invariably present.
Cortex often normal in size. Atrophy very late.	Cortex always much atrophied.
Renal epithelium much swollen, desquamating freely, often in a state of fatty degeneration, but cells always visible. Compound granule cells.	Renal epithelium never desquamating, though it may undergo fatty degeneration (necrosis), and become diminished in size and partly lost.
Tube casts, epithelial, dark granular, and containing compound granule cells, and later fat globules.	Tube casts, hyaline, pale granular, and waxy, but never containing cells, epithelial or any other.

ANALYSIS OF THE CASES.

The one hundred and fifty autopsies from which I draw my conclusions are, as stated, recorded in detail in the second part of this paper (Appendix). I thought it necessary and convenient to record them here, as future studies of the same by anyone may reveal points of interest at present unconsidered. Each case has a reference to the autopsy records of the Philadelphia Hospital, so that, should additional information be desired, it may be gained therefrom.

NOTE.—If the classification and the definition of Bright's disease in its various forms were undisputed and a uniform nomenclature adhered to by all, then there would be no discrepancy in statistical results such as is seen in the literature of the subject. I would earnestly urge the adoption of a uniform nomenclature for the various forms of Bright's disease and the abolition of some of the synonyms. Some of the latter are misleading, and I have met with instances where pathologists and clinical teachers would designate one and the same form of Bright's disease by entirely different names (without thinking that they were identical) and also under a certain given name, affections entirely different from one another. Others delight in suggesting and using new names for the various forms without giving synonyms when writing on the subject, and leaving the reader to conjecture from the description, which form of the affection they really mean.

The large general table is a summary of all the cases recorded in this paper, and gives the duration of life, the cause of death, the condition of the body, dropsy, cystic change of the kidney, and the prominent cardiac complications, such as hypertrophy, valvular disease, fatty metamorphosis, and dilatation of the heart, as well as the arterial changes in each form of Bright's disease, stating the number of cases. The figures expressing the percentage side by side with the number of cases, facilitate comparison with other statistics.

Beside this, I have compiled several special tables which give interesting data relating to hypertrophy of the heart under varying conditions; fatty metamorphosis of the cardiac walls, valvular disease and pericarditis, and the weight of the heart and kidneys in each of these affections.

I also present tables relating to age and sex, and further, some interesting figures concerning the weight of the heart in relation to the weight of the body, and finally, some data relating to the distribution of Bright's disease during the various periods of life.

References will be found in the records to arterial changes and a summary of the various complications or concurrent affections of Bright's disease.

CONCLUSIONS.

From the accompanying general table the following conclusions may be made:

Hypertrophy of the Heart.

Considering the two forms of Bright's disease apart, we find that general hypertrophy co-exists more frequently with parenchymatous nephritis, viz., in 29 per cent.; while hypertrophy of the left ventricle alone was met with in 26 per cent. in this form of Bright's disease. Hypertrophy of the left ventricle predominates in interstitial nephritis, showing 44 per cent. to 26 per cent. of the parenchymatous. General hypertrophy occurred in interstitial nephritis in 28 per cent.

Hypertrophy of heart in connection with parenchymatous nephritis occurred in 56 per cent. of all cases, and in the interstitial nephritis in 60 per cent.[1]

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[1] There were six cases among the hospital records of red granular kidney in which the cause of death was designated *senility*. As there were many aged persons among the autopsy material of this series, I fear that some cases of senile atrophy of the kidneys with absence of hypertrophy of the heart, have crept into these records.

Results of the Analysis of the Autopsy Records of the Philadelphia Hospital.

		Parenchymatous Nephritis.								Interstitial Nephritis		Total.	
		Acute Bright's		Large white.		Fatty and contracted.		Total of parenchymatous.		Red granular.			
Number of cases of each form		5		35		35		75		75		150	
Average age at time of death		31 years		39 years		46 years		. . . .		59 years		. . . .	
		No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
Cause of death,	uræmia	0		9	26	11	31	20	27	30	40	50	33
	œdema of lungs	2	40	5	14	4	11	11	15	7	9	18	12
	cerebral apoplexy,	0		0		1	3	1	1.5	5	7	6	
	pneumonia	2	40	2	6	3	9	7	9	6	8	13	9
	pericarditis	0		1	3	2	6	3	4	4	5	7	4.5
	hydropericardium	0		3	9	2	6	5	7	0		5	3
	heart failure	0		2	6	5	14	7	9	4	5	11	7
	sudden	0		2	6	2	6	4	5	5	7	9	6
Body emaciated		0		3	9	9	26	12	16	14	19	26	17
Dropsy,	present	5	100	19	54	13	37	37	49.5	22	29	59	39.5
	absent or not stated	0		16	46	22	63	38	51	53	71	91	61
Renal cysts,	present	0		4	11	10	29	14	19	25	33	39	26
	absent	5	100	31	89	25	71	61	81	50	67	111	74
Hypertrophy of heart,	left ventricle	1	20	4	11	9	26	14	19	23	31	87	58
	general	0		15	43	13	37	28	37	22	29		
	very slight, or absent	4	80	16	46	13	37	33	44	30	40	63	42
Hypertrophy with valvular disease,	left ventricle, general,	0		12	34	11	31	23	31	29	39	52	35
Hypertrophy without valvular disease,	left ventricle, general,	1	20	9	26	9	26	19	25	17	23	36	24
Valvular disease without hypertrophy		1	20	3	9	3	9	7	9	12	16	19	13
Heart normal		3	60	11	31	12	34	26	35	17	23	43	29
Arterial changes,	present	1	20	9	26	13	37	23	31	48	64	71	47
	absent	4	80	26	7	22	63	52	69	27	36	79	53
Renal arteries involved		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dilatation of heart,	present	1	20	9	26	14	40	24	32	27	36	51	34
	absent, or very slight	4	80	26	7	21	60	51	68	48	64	99	66
Fatty metamorphosis heart muscle,	present	1	20	5	14	8	23	14	19	17	23	31	20.5
	absent, or not stated	4	80	30	86	27	77	61	81	58	77	119	79
The same without hypertrophy		1	20	2	6	3	9	6	8	14	19	20	13

RELATION TO VALVULAR DISEASE.

The relation of valvular disease to the two forms of Bright's disease (the parenchymatous and the interstitial) appears to be an indefinite one.

Valvular disease *without* hypertrophy proves to be nearly equally distributed between the parenchymatous and interstitial, occurring in the former in 12 per cent. and in the latter in 13 per cent.

In the chronic interstitial nephritis hypertrophy of the heart without valvular disease was met with in 27 per cent. of all cases, while in the parenchymatous form it was 34.5 per cent.

Hypertrophy of the heart *with valvular disease* co-existed with chronic interstitial nephritis in 42 per cent., or nearly twice as frequently as in the parenchymatous forms in which it was 23 per cent. (occurring with equal frequency in the large white, and fatty and contracted kidneys).

The *degree* of hypertrophy appears also to be influenced by valvular disease, and still more by pericarditis, as the following results will show:

	Cases.	Average weight of heart.
Hypertrophy without valvular disease . .	93	14 ounces.
Hypertrophy with valvular disease . .	94	17 "
Hypertrophy with pericarditis . . .	22	18 "

The duration of the disease and probably the age of the patient are evidently correlative with the degree of the hypertrophy.

The average weight of the hypertrophied heart appears from my tables to be as follows in the different forms of Bright's disease:

	Average weight.
In acute Bright's	10 ounces.
In large white kidney	15 "
In fatty and contracted kidney	14 "
In red granular kidney	17 "

Relation of the weight of the body to the weight of the heart.—That the former has a great influence upon the apparent degree of the hypertrophy of the heart, may be gleaned of the table that I submit below, in which the important factor, the weight of the body, expressed in pounds, is considered side by side with the weight of the hypertrophied heart.

TABLE SHOWING RELATION OF WEIGHT OF HEART TO THAT OF BODY.[1]

Weight of the heart as found.	Large white kidneys including 10 cases acute Bright's disease. (54 cases.)		Fatty and contracted kidneys. (46 cases.)		Red granular kidneys. (50 cases.)	
	Number of cases observed.	Average weight of the bodies.	Number of cases observed.	Average weight of the bodies.	Number of cases observed.	Average weight of the bodies.
Below 10 ounces . .	13	132	3	120	1	190
10-11 " . .	5	128	7	130	2	155
11-12 " . .	2	134	2	135	2	110
12-13 " . .	6	148	4	130	3	130
13-14 " . .	5	152	4	134	4	120
14-15 " . .	3	138	1	132	...	......
15-16 " . .	1	145	5	130	6	143
16-17 " . .	3	157	2	140	7	122
17-18 " . .	...	......	3	146	5	135
18-19 " . .	4	151	2	142	...	......
19-20 " . .	3	150	1	130	4	138
20-25 " . .	9	150	7	152	11	142
25-30 " . .	...	......	2	160	5	163

It will be seen from this that advanced degrees of hypertrophy, viz., the heart weighing above 15 ounces, occurred as follows:

	Cases.	Per cent.
Acute Bright's and large white kidney—heart above 15 ounces	20	37.5
Fatty and contracted kidney " " " " .	22	48
Red granular kidney " " " " .	38	76

Where there were large hearts, as a rule, valvular disease co-existed, especially when associated with the red granular kidney. Also, with few exceptions, *the largest hearts corresponded more or less with the largest sized bodies.*

Microscopy of the hypertrophied cardiac muscle.—There are two points of interest that I will but briefly refer to.

1. Cardiac hypertrophy depends upon simple increase in the bulk of the muscular fibres, viz., a simple, true hypertrophy, and not upon any hyperplasia (increase in number) of the elements. Each individual muscular fibre in the hypertrophied heart shows by accurate micrometry to be up to twice and three times thicker and longer than the normal muscular fibre of the heart, and it is, therefore, not surprising that the latter should become twice and three times enlarged.

The hyperplasia of the connective tissue, though quite marked in many specimens, is not an important factor in adding to the bulk or weight of the heart.

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[1] This table, as well as all references to weights, I quote from a paper of mine published in Vol. IV of the transactions of the Association of American Physicians.

2. Necrotic change of the muscular fibres was occasionally observed in some of the largest hearts, especially in limited areas. Yet, in many instances, this proved to be due to cadaveric change, which I need not explain at this place. I refer to this only because in some instances it may be mistaken for true ante-mortem fatty metamorphosis of the cardiac muscle.

Fatty Metamorphosis of Heart.

The distribution of *fatty metamorphosis* of the *hypertrophied cardiac wall* in the several forms of Bright's disease proved to be as follows:

	Cases.	Per cent.
In acute Bright's disease	1	20
In the large white kidney	5	14
In the fatty contracted kidney	8	23
In the red granular kidney	17	23
Fatty metamorphosis, absent or not stated	119	79
Fatty metamorphosis, without hypertrophy	20	13

While it appears that fatty metamorphosis of the heart muscle coexists more frequently with the red granular kidney, I found that in many of these cases the necrotic change of the muscle was but slight, whereas, in conjunction with the fatty and contracted kidney and in some non-hypertrophied hearts, it was decidedly more pronounced. The typical *brown atrophy* of the heart occurred in my cases more commonly in the fatty and contracted kidney, at advanced age and coincident with atheroma of the coronary arteries. The pigmentation around the nuclei of the muscle is also most conspicuous in these cases.

Fatty metamorphosis whenever met with, was fairly indicated by the dilatation of the cardiac walls and distinct yellow or brownish striations or patches beneath the endocardium, and particularly in the *columnæ carneæ;* occurring with equal frequency in the right and left chambers.

The method adopted for microscopical examination was an easy one and the best, viz., teasing in salt water or weak caustic soda solution. Fatty infiltration and cirrhosis of the interstitial tissue of the cardiac walls were met with in six cases, combined with fatty metamorphosis.

Atheroma of the aorta and of larger vessels was observed as follows:

	Cases.	Per cent.
In the large white kidney (including one of acute Bright's disease)	10	23
In the fatty and contracted kidney	13	37
In the red granular kidney	48	64
Total in both series	157	52

The *average weight of the kidneys* in the various forms of Bright's disease is of interest, and is as follows (in ounces):

	Right.	Left.
Acute Bright's disease	7.65	8.12
Large white kidney	6.91	7.87
Fatty and contracted kidney	4.74	4.86
Red granular kidney	3.13	3.43
General average of	5.61	6.07

MORTALITY OR DURATION OF LIFE IN BRIGHT'S DISEASE AS SEEN FROM THE CASES TABULATED.

	10–20 yrs.	20–30 yrs.	30–40 yrs.	40–50 yrs.	50–60 yrs.	60–70 yrs.	Over 70 years.
Acute Bright's disease and large white kidney,	4	6	12	7	5	1	1
Fatty and contracted kidney,	1	1	7	7	7	7	4
Red granular kidney,	0	3	4	16	17	18	17

I admit that as regards many interesting details these studies, as now presented, are deficient. I propose to complete them in the future with such additions as the continuous new supply of material will offer.

The literature on these subjects is very interesting, but I shall not take up space with matters well known to the reader.

APPENDIX.

THE ANALYSIS OF THE AUTOPSY RECORDS OF THE PHILADELPHIA HOSPITAL FOR FIVE YEARS (1884–1889). SECOND SERIES.

Total number of autopsies	1,300
Total number of typical Bright's disease (exclusive of amyloid kidneys)	150

Parenchymatous nephritis, including—	No. of cases.	Chronic interstitial nephritis, including only—	No. of cases.
Acute Bright's disease	5	Red granular or cirrhotic kidney, or primarily contracted (atrophic) kidney	75
Large white kidney	35		
Fatty and contracted, or secondary contracted kidney	35		
Total	75	Total	75
Males	52	Males	39
Females	23	Females	36
Average age	43	Average age	59

ACUTE BRIGHT'S DISEASE, OR ACUTE PARENCHYMATOUS NEPHRITIS (5 CASES).

Appearance of kidneys the same as given in the first series.

CASE I. Tyson, June 8, 1885.—Male, age thirty-two. Cause of death pneumonia. Kidneys one-third larger than normal. Dropsy. Heart normal size. Fatty metamorphosis. Valvular disease, mitral regurgitation. Dilatation left side. General anasarca.

CASE II. Osler, January 23, 1888.—Male, age forty-four. Cause of death œdema of lungs. Kidneys equally large, swollen. Dropsy. Heart large. Hypertrophy slight. Atheroma posterior coronary artery. General anasarca.

CASE III. Henry, March 23, 1888.—Male, age thirty-three. Cause of death erysipelas. Kidneys 10 ounces each. Dropsy. Heart weight 15 ounces. Hypertrophy left side. General anasarca. Acute pleurisy.

CASE IV. Musser, August 7, 1888.—Male, age thirty-five. Cause of death œdema of lungs. Kidneys much enlarged. Heart normal size. Slight hypertrophy. Aorta dilated.

CASE V. Neff, October 17, 1886.—Male, age fourteen. Cause of death pneumonia. Kidneys much enlarged. Dropsy. Heart normal. Acute hepatitis.

LARGE WHITE KIDNEY (35 CASES).

Appearance of the kidneys the same as given in the first series of cases.

CASE I. Neff, August 1, 1884.—Male, age forty-seven. Death sudden. Kidneys both equal, but half larger than normal. Cysts present. Dropsy present. Heart weight 28 ounces. Valvular disease, aortic and mitral insufficiency. Hypertrophy general. Fatty metamorphosis none. Dilatation general. Atheroma none. Chronic endocarditis.

CASE II. Curtin, October 4, 1883.—Male, age forty-four. Death sudden. Kidneys slightly enlarged equally. Cysts present. Heart normal size, but muscle anæmic.

CASE III. Parvin, February 2, 1885.—Female, age eighteen. Cause of death puerperal septicæmia. Kidneys each 9½ ounces. Heart slightly enlarged. Dilatation right side. No other lesion.

CASE IV. Hearn, September 21, 1885.—Female, age thirty-two. Cause of death surgical operation. Heart normal size. Disease of femur.

CASE V. Walker, October 1, 1885.—Female, age twenty-four. Cause of death uræmia. Dropsy. Heart normal.

CASE VI. Tyson, December 29, 1885.—Female, age thirty-one. Cause of death acute endocarditis. Kidneys, weight right 14 ounces, left 13 ounces. Dropsy. Heart enlarged. Valvular disease, aortic and mitral. Hypertrophy left side. Hydrothorax. No other lesions.

CASE VII. Walker, February 13, 1886.—Male, age thirty-nine. Cause of death heart failure. Kidneys enlarged. Dropsy. Heart large. Valvular disease, aortic and mitral insufficiency. Hypertrophy general. Fatty metamorphosis. Dilatation general. Atheroma of aorta. Lung compressed from great hypertrophy of heart.

CASE VIII. Stryker, April 25, 1886.—Female, age twenty. Cause of death uræmic coma. Kidneys each 10 ounces. Dropsy present. Heart weight 11 ounces.

CASE IX. Wilson, May 14, 1886.—Female, age thirty-eight. Cause of death uræmia. Kidneys each one-third above normal. Dropsy general. Heart somewhat enlarged. Hypertrophy slight, general. Atheroma slight in aorta.

CASE X. Tyson, July 8, 1886.—Male, age thirty. Cause of death œdema of lungs. Kidneys much enlarged. Heart normal size.

CASE XI. Mills, October 17, 1886.—Male, age thirty. Cause of death pneumonia. Kidneys each one-third above normal. Heart large. Valvular disease, aortic. Hypertrophy left side. Fatty metamorphosis probably present. Dilatation left side.

CASE XII. Neff, October 27, 1886.—Male, age thirty-nine. Cause of death embolic pneumonia. Kidneys each 11 ounces. Cysts present. Heart weight 23 ounces. Valvular disease, aortic. Hypertrophy general. Dilatation general.

CASE XIII. Osler, December 11, 1886.—Male, age seventy-one. Cause of death meningitis (purulent, basic). Kidneys each 7 ounces. Cysts innumerable. Heart medium size. Valvular disease, mitral and aortic. Brown atrophy. Atheroma, aorta, and places in coronary.

CASE XIV. Neff, January 1, 1887.—Female, age sixteen. Cause of death œdema of lungs. Kidneys much enlarged. Dropsy. Heart normal.

CASE XV. Bruen, April 11, 1887.—Male, age thirty-three. Cause of death œdema of lungs. Kidneys enlarged. Dropsy. Heart weight 32 ounces. Valvular disease, mitral regurgitation. Hypertrophy general. Dilatation general.

CASE XVI. Bruen, June 11, 1887.—Male, age thirty-four. Cause of death œdema of lungs. Kidneys above normal. Dropsy. Heart large. Hypertrophy general.

CASE XVII. Tyson, July 26, 1887.—Male, age seventy. Cause of death congestion of lungs. Kidneys large, unequal. Dropsy. Heart large. Valvular disease, aortic and mitral. Hypertrophy general. Fatty metamorphosis present. Atheroma of aorta and coronary. Large right inguinal hernia.

CASE XVIII. Walker, July 13, 1887.—Male, age twenty-six. Cause of death phthisis. Kidneys each 10 ounces. Heart normal.

CASE XIX. Wilson, July 22, 1887.—Female, age thirty-three. Cause of death uræmia. Kidneys equally enlarged. Heart normal in size. Valvular disease, mitral stenosis.

CASE XX. Musser, August 16, 1887.—Male, age thirty-seven. Cause of death uræmia. Kidneys each 8 ounces. Dropsy. Heart weight 11 ounces. Hypertrophy general. Pericarditis.

CASE XXI. Musser, October 12, 1887.—Male, age thirty-six. Cause of death heart failure. Kidneys equally large. Dropsy. Heart weight 9½ ounces. Hypertrophy left side. Atheroma, aorta.

CASE XXII. Musser, January 23, 1888.—Male, age fifty. Cause of death uræmia. Kidneys equally large. Dropsy. Heart normal size. Hypertrophy left side. Fatty metamorphosis probably present. Dilatation right ventricle

CASE XXIII. Walker, June 5, 1888.—Male, age fifty-two. Cause of death uræmia. Kidneys. equally large. Heart slight hypertrophy. Hydrothorax.

CASE XXIV. Parish, June 22, 1888.—Female, age thirty-two. Cause of death septicæmia. Kidneys, weight right 11½ ounces, left 13 ounces. Miliary septic abscesses. Heart normal. Cystitis, septic abscess.

CASE XXV. Musser, August 7, 1888.—Male, age twenty-seven. Cause of death œdema of lungs. Kidneys each 18 ounces. Heart normal.

CASE XXVI. Dercum. March, 3 1889.—Female, age fifty-seven. Cause of death septicæmia from bedsores. Kidneys equally enlarged. Cysts. Heart normal size. Valvular disease, mitral. Atheroma of aorta and coronary. Hemorrhagic infarct of kidney.

CASE XXVII. Henry, June 15, 1889.—Female, age forty-five. Cause of death cerebellar glioma. Kidneys equally enlarged. Heart weight 12 ounces. Valvular disease, aortic, slight. Hypertrophy present.

CASE XXVIII. Walker, April 20, 1889.—Male, age sixty. Cause of death pneumonia. Kidneys equally enlarged. Heart large. Valvular disease, aortic. Hypertrophy general. Dilatation general.

CASE XXIX. Walker, July 11, 1889.—Male, age forty. Cause of death pericarditis. Kidneys equally enlarged. Heart large. Valvular disease, aortic and mitral. Hypertrophy general. Atheroma of aorta.

CASE XXX. Tyson, July 23, 1889.—Female, age sixty. Cause of death uræmia. Kidneys each 6 ounces. Dropsy. Heart weight 22 ounces. Valvular disease, mitral. Hypertrophy left side. Dilatation left side. Atheroma of aorta.

CASE XXXI. Wilson, July 24, 1889.—Male, age thirty-two. Cause of death uræmia. Kidneys each 6½ ounces. Heart weight 9 ounces. Lungs, chronic phthisis.

CASE XXXII. Tyson, July 24, 1889.—Male, age thirty. Cause of death abdominal tuberculosis. Kidneys each 6½ ounces. Dropsy. Heart weight 9½ ounces. Hypertrophy slight, general. Miliary tuberculosis.

CASE XXXIII.—Martin, July 29, 1889.—Male, age forty-four. Cause of death apoplexy, meningitis. Kidneys each 7½ ounces. Heart weight 14 ounces. Valvular disease, aortic and mitral, acute. Hypertrophy general.

Case XXXIV. Henry, July 31, 1889.—Male, age forty-four. Cause of death acute phthisis. Kidneys each 10 ounces. Heart weight 10 ounces. Hypertrophy general. Slight general atheroma.

Case XXXV. Curtin, August 10, 1889.—Male, age seventeen. Cause of death typhoid fever. Kidneys each 5½ ounces. Heart weight 11 ounces. Hypertrophy general. Scrofulous.

Fatty and Contracted Kidney (35 Cases).

Appearance of the kidneys the same as in the first series.

Case I. Tyson, April 3, 1884.—Male, age fifty-five. Cause of death uræmia. Kidneys, weight right 4 ounces, left 4¾ ounces. Large cysts in both. Dropsy. Heart large. Hypertrophy general. Atheroma of aorta. Evidence of sub-acute attack.

Case II. Walker, May 3, 1884.—Female, age twenty-two. Cause of death uræmia. Kidneys, weight right 3 ounces, left 5½ ounces. Large cyst in left kidney. Heart normal.

Case III. Tyson, August 13, 1884.—Female, age forty. Cause of death pyelitis and inanition. Kidneys above normal. Heart normal. Complete prolapsus uteri. Pyelitis.

Case IV. Neff, August 25, 1884.—Male, age forty. Cause of death œdema of lungs. Kidneys, left very large, right smaller. Dropsy. Heart large. Valvular disease, mitral. Hypertrophy left ventricle. Atheroma of aorta.

Case V. Curtin, November 3, 1884.—Male, age thirty-eight. Cause of death heart failure. Kidneys equally enlarged. Heart large. Valvular disease, aortic thickening. Hypertrophy slight.

Case VI. Curtin, January 24, 1885.—Male, age forty-three. Cause of death pneumonia. Kidneys each 5½ ounces. Heart normal.

Case VII. Tyson, May 11, 1885.—Male, age sixty-eight. Cause of death pulmonary œdema. Kidneys, weight right 4 ounces, left 4½ ounces. Cysts in right kidney. Heart weight 16 ounces. Valvular disease, mitral. Hypertrophy general. Atheroma of aorta.

Case VIII. Wilson, May 19, 1885.—Male, age fifty-five. Cause of death pneumonia. Kidneys unequally enlarged. Heart normal.

Case IX. Bruen, August 8, 1885.—Female, age fifty. Cause of death pneumonia. Kidneys above normal, both equal. Cysts. Dropsy. Heart large. Hypertrophy slight, general. Dilatation. Atheroma of aorta.

Case X. Walker, September 17, 1885.—Male, age nineteen. Cause of death pulmonary œdema. Kidneys below normal, equal. Dropsy. Heart large. Hypertrophy slight. Dilatation right ventricle.

Case XI. White, November 2, 1885.—Male, age sixty-six. Cause of death septicæmia. Kidneys below normal. Heart normal. Operation for injury of foot.

Case XII. Wood, December 9, 1885.—Male, age fifty. Cause of death cerebral apoplexy. Kidneys below normal. Heart enlarged. Valvular disease, aortic valves thickened. Hypertrophy right ventricle slight. Atheroma of aorta and cerebral.

CASE XIII. Walker, March 4, 1886.—Male, age forty-five. Cause of death heart failure. Kidneys below normal. Dropsy. Heart weight 28 ounces. Valvular disease, aortic, chiefly endocarditis. Hypertrophy general. Fatty metamorphosis. Dilatation general. Endocarditis and pericarditis, chronic.

CASE XIV. Wood, April 8, 1886.—Female, age sixty-four. Cause of death uræmia. Kidneys below normal. Heart normal size. Fatty metamorphosis. Dilatation slight, general.

CASE XV. Walker, June 19, 1886.—Male, age sixty-one. Cause of death œdema of lungs. Kidneys above normal. Heart enlarged. Fatty metamorphosis. Dilatation general and well marked. Thickness of left ventricle much diminished.

CASE XVI. Osler, December 19, 1886.—Male, age fifty. Cause of death uræmia. Kidneys below normal in size. Cyst with calculus size of a large pea. Heart normal size. Hypertrophy slight.

CASE XVII. Janney, January 26, 1887.—Male, age thirty-four. Cause of death heart failure. Kidneys below normal. Heart weight 24 ounces. Hypertrophy general. Atheroma of aorta and renal.

CASE XVIII. Wilson, March 12, 1887.—Male, age fifty-two. Cause of death phthisis. Kidneys slightly below normal. Heart weight 9 ounces.

CASE XIX. Tyson, April 11, 1887.—Male, age seventy-two. Cause of death heart failure. Kidneys slightly below normal. Heart, old endocarditis. Fatty metamorphosis. Dilatation general.

CASE XX. Wilson, May 17, 1887.—Female, age thirty-eight. Cause of death uræmia. Kidneys, left small, right normal. Cyst. Heart small.

CASE XXI. Bruen, June 10, 1887.—Male, age seventy-four. Cause of death asthenia. Kidneys normal in size. Cyst. Dropsy. Heart large. Valvular disease, aortic and mitral. Hypertrophy general. Atheroma of aorta and coronary, complicated by gastric ulcer.

CASE XXII. Bruen, August 9, 1887.—Male, age fifty-four. Cause of death uræmia. Kidneys equally enlarged. Dropsy. Heart weight 14 ounces. Hypertrophy general. Dilatation general. Atheroma, aorta.

CASE XXIII. Musser, October 24, 1888.—Male, age thirty. Cause of death uræmia. Kidneys enlarged. Heart small.

CASE XXIV. Musser, October 29, 1888.—Male, age fifty-eight. Cause of death uræmia. Kidneys enlarged. Dropsy. Heart weight 20 ounces. Valvular disease, mitral. Hypertrophy general. Fatty metamorphosis. Dilatation left auricle. Atheroma, aorta.

CASE XXV. Musser, October 18, 1888.—Male, age sixty-five. Cause of death emphysema. Kidneys enlarged. Heart small. Valvular disease, aortic and mitral. Atheroma, aorta. Papillary muscles of left ventricle fibroid.

CASE XXVI. Curtin, December 13, 1888.—Female, age thirty-five. Cause of death uræmic convulsions. Kidneys enlarged, right larger. Cysts and dropsy. Heart medium size, mitral stenosis. Hypertrophy slight. Fatty metamorphosis. Dilatation general. History of rheumatism. Renal arteries thick and stiff.

CASE XXVII. Curtin, January 21, 1889.—Male, age sixty-nine. Cause of death alcoholism. Kidneys large. Heart large. Valvular disease, mitral. Hypertrophy general. Atheroma, aorta and coronary. Alcoholism. Chronic gastritis. Emphysema, hydrothorax.

CASE XXVIII. Osler, January 25, 1889.—Female, age seventy-five. Cause of death hydrothorax. Kidneys enlarged, left larger. Cysts and dropsy. Heart small. Valvular disease, mitral. Dilatation right side. Atheroma, aorta (dilated also).

CASE XXIX. Bruen, February 5, 1889.—Male, age forty-three. Cause of death uræmia. Kidneys enlarged. Heart large. Valvular disease, mitral stenosis. Hypertrophy left side. Dilatation left side.

CASE XXX. Bruen, March 3, 1889.—Female, age fifty. Cause of death heart failure. Kidneys about normal. Heart small. Valvular disease, mitral. Fatty metamorphosis. Dilatation general. Emphysema, hydrothorax.

CASE XXXI. Steinbach, June 10, 1889.—Female, age thirty-four. Cause of death embolié pneumonia. Kidneys equally enlarged. Heart normal in size. Valvular disease, aortic and mitral. Died after a surgical operation.

CASE XXXII. Walker, April 19, 1889.—Female, age eighty-seven. Cause of death senility. Kidneys normal size. Cyst and dropsy. Heart medium size. Valvular disease, mitral valve thickened. Dilatation general. Atheroma, aorta and coronaries. Senile change (?).

CASE XXXIII. Tyson, July 13, 1889.—Female, age thirty-eight. Cause of death carcinoma of pylorus. Kidneys normal size. Heart small. Fatty metamorphosis (?) Atheroma, coronary.

CASE XXXIV. Lloyd, August 18, 1889.—Male, age seventy-seven. Cause of death uræmia. Kidneys each 6 ounces. Dropsy. Heart weight 20 ounces. Hypertrophy general. Fatty metamorphosis. Dilatation general. Chronic obliterating pericarditis. Hydrothorax.

CASE XXXV. Curtin, August 12, 1889.—Male, age forty-nine. Cause of death phthisis. Kidneys equally enlarged. Dropsy. Heart large. Hypertrophy general.

RED GRANULAR KIDNEYS (75 CASES).

Appearance of the kidneys the same as in the first series.

CASE I. Wilson, May 24, 1884.—Male, age forty-six. Cause of death uræmia. Cysts not stated. Dropsy none. Heart weight 17 ounces. Valvular disease none. Hypertrophy simple. No other lesions.

CASE II. Bruen, May 28, 1884.—Male, age thirty-two. Cause of death uræmic coma. No cysts. No dropsy. Heart enlarged. Valvular disease none. Hypertrophy left side. Dilatation left ventricle. No other lesion.

CASE III. Walker, October 7, 1884.—Male, age forty-one. Cause of death tubercular peritonitis. No cysts. Ascites. Heart normal. No other lesions.

CASE IV. Walker, October 6, 1884.—Male, age forty-nine. Cause of death uræmia. No cysts. Dropsy present. Heart enlarged. Hypertrophy simple. No other lesion.

CASE V. Tyson, August 28, 1884.—Female, age forty. Cause of death uræmia. No cysts. Dropsy present. Heart weight 28 ounces. Valvular disease, mitral stenosis. Hypertrophy general. Dilatation right ventricle. Atheroma, aorta. Much pericardial effusion.

CASE VI. Bruen, October 6, 1884.—Male, age forty-eight. Cause of death uræmia. Cysts absent. No dropsy. Heart enlarged. Valvular disease, aortic. Hypertrophy left-sided. Dilatation general. Atheroma, aorta.

CASE VII. Neff, October 9, 1884.—Male, age forty-nine. Cause of death œdema of lungs. No cyst. Dropsy present. Heart much enlarged. Valvular disease, aortic stenosis, and regurgitation. Hypertrophy left side. Dilatation left ventricle. Atheroma, aorta. Dilatation of arch of aorta.

CASE VIII. Bruen, November 15, 1884.—Male, age sixty-one. Cause of death uræmia. Cysts present. Dropsy present. Heart much enlarged. Valvular disease none. Hypertrophy general. Left ventricle one inch thick. Dilatation general. Unilateral pleural effusion.

CASE IX. Porter, December 16, 1884.—Male, age twenty-two. Cause of death phthisis No cysts. No dropsy. Heart small. No other lesion. Kidney somewhat translucent.

CASE X. Curtin, December 18, 1884.—Male, age forty-three. Cause of death uræmia. No cysts. Dropsy present. Heart large. Hypertrophy general. Dilatation both sides. No other lesion. History of syphilis.

CASE XI. Mills, January 15, 1885.—Male, age fifty-two. Cause of death uræmic coma. No cysts. No dropsy. Heart normal. No other lesion.

CASE XII. Wood, February 18, 1885.—Female, age twenty-seven. Cause of death congestion of lungs. No cyst. No dropsy. Heart normal. No other lesion. Epileptic.

CASE XIII. Wood, February 24, 1885.—Male, age seventy-five. Cause of death œdema of lungs. Cysts and dropsy present. Heart large. Valvular disease, mitral. Hypertrophy general. Dilatation general. Atheroma, aorta and coronary. Chronic endocarditis.

CASE XIV. Wilson, April 11, 1885.—Female, age twenty-eight. Cause of death pneumonia. Cysts none. Dropsy present. Heart large. Valvular disease, mitral. Hypertrophy general. Dilatation general. Atheroma, aorta. Pericarditis adhesive and with calcification.

CASE XV. Bruen, May 17, 1885.—Male, age fifty. Cause of death pneumonia. Cysts present. Dropsy present. Heart twice normal size. Valvular disease, mitral. Hypertrophy general. Muscles flabby. Dilatation general. Chronic endocarditis.

CASE XVI. Bruen, May 2, 1885.—Male, age forty-seven. Cause of death œdema of lungs. No cysts nor dropsy. Heart normal size. Valvular disease, aortic. Hypertrophy none. Fatty metamorphosis present. Dilatation none. Atheroma, aorta and coronary.

CASE XVII. Bruen, June 9, 1885.—Male, age seventy. Cause of death apoplexy. Cysts present. Dropsy none. Heart normal. Fatty metamorphosis principally on left side. Dilatation general. Atheroma, coronary, cerebral, and aorta. Chronic pleurisy.

CASE XVIII. Curtin, July 12, 1885.—Female, age forty-four. Cause of death asthenia. No cyst. No dropsy. Heart normal size. Valvular disease, slight, mitral. Fatty metamorphosis present. Dilatation.

CASE XIX. Walker, September 12, 1885.—Male, age seventy. Cause of death meningitis. No dropsy. No cysts. Heart enlarged. Valvular disease, mitral.

Fatty metamorphosis present. Dilatation general. Atheroma present, especially coronary.

CASE XX. Curtin, October 27, 1885.—Female, age forty. Cause of death exhaustion due to cystitis. No cysts nor dropsy. Heart normal size. Valvular disease none. Hypertrophy none. Fatty metamorphosis present. Muscles flabby and tough. Cystitis and renal calculi.

CASE XXI. Curtin, November 21, 1885.—Male, age seventy-three. Cause of death œdema of lungs. No cysts. Dropsy present. Heart large. Valvular disease, aortic and mitral. Hypertrophy left side. Fatty metamorphosis none. No atheroma. Acute pericarditis. History of syphilis.

CASE XXII. Bruen, June 29, 1886.—Female, age seventy. Cause of death pericarditis. No cyst. No dropsy. Heart normal. Valvular disease, aortic valves thickened. Hypertrophy none. Fatty metamorphosis present. No atheroma. Mediastinal sarcoma. Pericarditis.

CASE XXIII. Neff, August 29, 1886.—Male, age eighty-five. Cause of death uræmia. Cysts present. No dropsy. Heart large. Valvular disease, aortic calcification, Hypertrophy general. Atheroma, aorta.

CASE XXIV. Neff, October 13, 1886.—Female, age fifty-seven. Cause of death uræmia. Cysts none. Dropsy none. Heart normal size. Valvular disease, mitral. Hypertrophy none. Fatty metamorphosis present. Hemorrhagic infarct in kidney.

CASE XXV. Musser, August 31, 1886.—Female, age thirty-six. Cause of death heart failure. No cysts. Dropsy present. Heart weight 17 ounces. Valvular disease, mitral. Hypertrophy general. Atheroma, coronaries.

CASE XXVI. Mills, October 14, 1886.—Female, age seventy-eight. Cause of death sclerosis of brain. Cysts present. No dropsy. Heart enlarged. Valvular disease none. Hypertrophy general.

CASE XXVII. Mills, January 16, 1887.—Female, age sixty-five. Cause of death uræmia. No cysts. No dropsy. Heart normal size. Valvular disease none. Hypertrophy none.

CASE XXVIII. Walker, February 18, 1887.—Male, age fifty-eight. Cause of death uræmia. No cysts. No dropsy. Heart enlarged. Valvular disease none. Hypertrophy left side. Dilatation right ventricle. Atheroma, aorta.

CASE XXIX. Wilson, February 26, 1887.—Male, age fifty-one. Cause of death œdema of lungs. Cysts present. No dropsy. Heart weight 18 ounces. Valvular disease none. Hypertrophy left side. Dilatation left ventricle. Atheroma, aorta.

CASE XXX. Tyson, April 1887.—Female, age seventy. Cause of death uræmia. No cysts. No dropsy. Heart weight 14 ounces. Valvular disease none. Hypertrophy general. Arterial change, aortic. History of syphilis.

CASE XXXI. Wilson, May 3, 1887.—Male, age fifty-two. Cause of death œdema of brain. No cyst. Dropsy present. Heart normal size. Valvular disease, aortic. Fatty metamorphosis present. Arterial changes, coronary and aorta.

CASE XXXII. Tyson, June 20, 1887.—Female, age fifty. Cause of death apoplexy. No cyst. No dropsy. Heart enlarged. Valvular disease, mitral. Hypertrophy general. Arterial changes, aorta and cerebral. Heart had moderator band.

CASE XXXIII. Ransley, June 27, 1887.—Female, age forty-one. Cause of death heart failure. Cysts present. Dropsy absent. Heart small. Valvular disease, mitral. Fatty metamorphosis present. Dilatation present.

CASE XXXIV. Tyson, August 20, 1887.—Male, age sixty-five. Cause of death uræmia. Cysts present. Dropsy present. Heart small. Valvular disease, aortic and mitral. Fatty metamorphosis present. Dilatation present. Arterial changes, aorta and coronary.

CASE XXXV. Mills, September 1, 1887.—Female, age ninety-six. Cause of death senility. Cysts present. Dropsy absent. Heart small. Valvular disease, aortic and mitral. Fatty metamorphosis present. Arterial change, aorta.

CASE XXXVI. Dercum, October 22, 1887.—Male, age eighty-two. Cause of death uræmia. Cysts absent. Dropsy absent. Heart normal size. Fatty metamorphosis present. Arterial change, aorta and coronary.

CASE XXXVII. Dercum, November 19, 1887.—Male, age fifty-four. Cause of death œdema of brain. Cysts and dropsy both absent. Heart enlarged. Valvular disease, mitral. Hypertrophy left side.

CASE XXXVIII. Dercum, November 27, 1887.—Female, age eighty. Cause of death œdema of brain. Cysts absent. Dropsy present. Heart enlarged. Valvular disease, mitral and aortic. Hypertrophy general. Arterial changes, aorta. Aneurism of abdominal aorta.

CASE XXXIX. Parish, December 25, 1887.—Female, age forty. Death sudden. Cysts and dropsy both absent. Heart small. Fatty metamorphosis present. Dilatation present. History of syphilis.

CASE XL. Osler, January 25, 1888.—Female, age fifty-six. Cause of death uræmia. Cysts present. Dropsy absent. Heart large. Valvular disease, mitral. Hypertrophy left side. Pleural effusion.

CASE XLI. Henry, March 30, 1888.—Female, age seventy. Cause of death heart failure. Cysts none. Dropsy none. Heart weight 18 ounces. Valvular disease, aortic and mitral. Hypertrophy general. Arterial changes, aorta and coronary. Patulous foramen ovale and endocarditis.

CASE XLII. Walker, April 28, 1888.—Male, age sixty-eight. Death sudden. Cysts present. Dropsy present. Heart weight 31 ounces. Valvular disease, aortic. Hypertrophy left side one and a quarter inch in front. Chronic adhesive pericarditis.

CASE XLIII. Walker, May 4, 1888.—Female, age sixty-eight. Cause of death uræmia. Cysts absent. Dropsy present. Heart weight 14 ounces. Hypertrophy right side. Arterial change, aorta and coronary.

CASE XLIV. Dercum, August 12, 1888.—Male, age fifty-two. Cause of death senile gangrene. Cysts absent. Dropsy absent. Heart normal size. Valvular disease, aortic and mitral. Hypertrophy left side. Arterial changes, aortic and coronary. Heart firmly contracted.

CASE XLV. Deaver, August 21, 1888.—Female, age forty-one. Cause of death uræmia. Cysts none. Dropsy none. Heart normal size.

CASE XLVI. Musser, September 21, 1888.—Female, age forty-six. Cause of death uræmia. Cysts present. Dropsy absent. Heart normal size. Valvular disease, mitral. Hypertrophy slight and general. Arterial changes, coronary.

Case XLVII. Osler, September 10, 1888.—Male, age forty-seven. Cause of death uræmia. No cysts or dropsy. Heart large. Hypertrophy present, right ventricle larger than left. Arterial changes, aorta and coronary. Small renal arteries greatly enlarged.

Case XLVIII. Mills, October 9, 1888.—Male, age sixty. Cause of death uræmia. Cysts present. Dropsy absent. Heart large. Valvular disease, mitral and aortic. Hypertrophy left side. Dilatation left side.

Case XLIX. Dercum, October 12, 1888.—Male, age sixty-three. Cause of death pneumonia or uræmia. Cysts present in both. Dropsy absent. Heart normal. Valvular disease, aortic, chronic. Fatty metamorphosis present. Atheroma, aorta. Pneumonia.

Case L. Musser, October 12, 1888.—Female, age ninety-one. Cause of death abdominal aneurism. Cysts present in both kidneys. Dropsy absent. Heart large. Valvular disease, aortic, chronic. Hypertrophy left side. Atheroma, aortic and general. Large abdominal aneurism. Renal arteries also atheromatous, papillary muscles fibroid change.

Case LI. Mills, October 15, 1888.—Male, age sixty-five. Cause of death pachymeningitis hemorrhagica. Cyst present in both kidneys. Dropsy absent. Heart large. Valvular disease, mitral, chronic. Hypertrophy general. Atheroma, aorta and coronary.

Case LII. Bruen, November 20, 1888.—Male, age seventy-eight. Cause of death pulmonary œdema. Cysts present. Dropsy present. Heart normal size. Valvular disease, aortic, regurgitation. Atheroma; aorta, internal carotid, basilar, and coronary. Aortic valves fenestrated and hydronephrosis.

Case LIII. Dercum, October 20, 1888.—Female, age seventy-six. Cause of death apoplexy. No cysts. No dropsy. Heart small. Valvular disease, aortic. Fatty metamorphosis present. Atheroma, aorta and arteries of brain.

Case LIV. Curtin, October 31, 1888.—Female, age sixty-five. Cause of death pulmonary œdema. Cysts present. Dropsy absent. Heart enlarged. Valvular disease, mitral. Hypertrophy left side. Dilatation right ventricle. Atheroma, aorta.

Case LV. Musser, November 21, 1888.—Female, age sixty-eight. Cause of death uræmia. Cysts and dropsy both absent. Heart large. Valvular disease, mitral. Hypertrophy left side. Atheroma, aorta and coronary.

Case LVI. Dercum, December 1, 1888.—Female, age seventy-three. Cause of death pneumonia. Cysts present. Dropsy present. Heart large. Hypertrophy left side. Atheroma, aorta and cerebral arteries. Cirrhosis of liver.

Case LVII. Dercum, December 30, 1888.—Male, age fifty-six. Cause of death uræmic convulsion. Cysts present. Dropsy present. Heart large. Valvular disease, mitral. Hypertrophy general. Fatty metamorphosis present. Dilatation general. Atheroma, aorta and cerebral.

Case LVIII. Mills, December 18, 1886.—Female, age seventy-two. Cause of death meningitis. Cyst absent. Dropsy absent. Heart normal size. Valvular disease, aortic and mitral. Hypertrophy none. Fatty metamorphosis. Dilatation marked.

Case LIX. Musser, December 29, 1886.—Female, age fifty-five. Cause of death pneumonia and uræmia. Cyst and dropsy absent. Heart weight 11 ounces. Valvular disease none. Hypertrophy general. Fatty metamorphosis none. Dilatation right ventricle. Atheroma, aorta and coronaries

CASE LX. Neff, December 30, 1886.—Female, age thirty-five, highly anæmic. Cause of death uræmia. No cysts. No dropsy. Heart normal size. No other lesion. History of malaria.

CASE LXI. Henry, February 20, 1889.—Male, age forty-eight. Cause of death uræmia and pneumonia. Heart weight 10 ounces. Valvular disease and dropsy none. Hypertrophy slight.

CASE LXII. Montgomery, March 5, 1889.—Female, age sixty. Cause of death uræmia. Heart large. Valvular disease none. Hypertrophy left-sided. Dilatation right-sided. Ovariotomy.

CASE LXIII. Walker, March 29, 1889.—Female, age ninety. Cause of death heart failure. Many cysts. Dropsy present. Heart large. Valvular disease, aortic and mitral. Fatty metamorphosis present. Dilatation general. Atheroma, aorta and coronaries.

CASE LXIV. Tyson, April 19, 1889.—Male, age sixty. Cause of death pleural effusion. Dropsy present. Heart normal size. Displaced by right-side pleural effusion.

CASE LXV. Walker, April 18 1889.—Female, age seventy-nine. Cause of death phthisis. Heart normal. Valvular disease, aortic. Hypertrophy slight. Dilatation slight. Heart and kidney changes may be senile.

CASE LXVI. Wilson, May 3, 1889.—Male, age sixty-three. Cause of death heart failure. Cysts present. Dropsy absent. Heart weight 20 ounces. Valvular disease, aortic. Hypertrophy left-sided one inch. Fatty metamorphosis none. Dilatation general. Atheroma, aorta and cerebral.

CASE LXVII. Henry, June 11, 1889.—Male, age seventy-six. Cause of death emphysema. Dropsy present. Heart weight 18 ounces. Valvular disease, slight thickening. Hypertrophy general.

CASE LXVIII. Henry, June 15, 1889.—Female, age eighty-four. Cause of death senility. Cysts present. Dropsy absent. Heart weight 9 ounces. Valvular disease none. Hypertrophy slight. Atheroma, aorta and coronaries.

CASE LXIX. Lloyd, June 26, 1889.—Male, age sixty-nine. Death sudden. Heart weight 24 ounces. Valvular disease none. Hypertrophy general. Atheroma, basilar arteries.

CASE LXX. Henry, July 11, 1889.—Male, age fifty-five. Cause of death uræmia. Heart very large. Valvular disease none. Hypertrophy left side.

CASE LXXI. Walker, July 15, 1889.—Female, age seventy-one. Cause of death phthisis. Cysts present. Heart small. Valvular disease, aortic. Atheroma, coronaries.

CASE LXXII. Walker, July 17, 1889.—Female, age eighty. Cause of death uræmia. Cysts none. Dropsy present. Heart weight 22 ounces Valvular disease, mitral insufficiency. Hypertrophy general, left ventricular one and a quarter inch, right three-quarters of an inch. Atheroma none.

CASE LXXIII. Lloyd, July 22, 1889.—Male, age forty-nine. Cause of death apoplexy. Heart weight 20 ounces. Valvular disease, aortic. Hypertrophy left side. Dilatation left side.

Case LXXIV. Dercum, July 27, 1889.—Male, age forty-nine. Cause of death meningitis. Heart weight 11 ounces. Valvular disease, mitral. Hypertrophy slight. Atheroma, root of aorta. Contraction of kidney, slight, cyanotic.

Case LXXV. Dercum, August 1, 1889.—Female, age fifty-three. Cause of death cerebral apoplexy. Heart normal size. Valvular disease, mitral, slight. Atheroma, aorta, coronaries, and cerebral.

A STUDY OF THE BACILLUS SUBTILIS.

By J. LEFFINGWELL HATCH, B.S., M.D.

Having had some doubts as to whether or not a non-specific bacterium could set up a septicæmia, not necessarily *per se*, but on account of *materies pecans* that it might carry, I determined to investigate the subject carefully. It is also interesting to know whether such bacteria could set up an inflammatory process from the mechanical action on the cells, subsequent to their lodgment in the tissues.

It will at once be seen how difficult it would be to determine whether or not, a bacillus was the bearer of any other toxic agent. If a septicæmia results from a pure culture, it is rather evidence of the fact that it was due to the bacillus itself; if, however, we take a number of zoöglia and filter out the bacteria, then we have a substance which is the product of the bacteria, and any post-inoculatory results would be due to this substance and not directly to the bacteria.

Again, this substance may be the normal secretion of the bacteria, or it may be abnormal or pathological. How are we to determine this? Chemical analysis or spectroscopic analysis are the only agents that can aid us here, and of these we shall have to eliminate chemical analysis on account of the minute quantity of the bacterian product. The second idea, as to whether they can produce some toxic result by setting up an inflammatory process mechanically, by the presence in the tissues, is easier of demonstration; and it is this latter course which I have been contented to follow before I take up the more complex and intricate one.

The following experiments were made upon rabbits with pure cultures of the bacillus subtilis, and in order that the nicety of the technique may not be questioned, I submit my methods in detail, in connection with the results of the inoculations:

The bacillus subtilis (hay bacillus) is considered by Klein (Micro-organisms and Disease) as a non-pathogenic bacillus. It is a widely distributed bacillus, found in nearly all decomposing nitrogenous substances; it is a rod bacillus, reproducing both by spores and fission. The rods are from 0.002 to 0.006 mm. in length, and are about 0.002 mm. thick. They divide best at a temperature of 35° C., requiring about twenty minutes. After division they hang together, forming a large zoöglia. This, in the culture, gives us the characteristic dense pellicle of the bacillus, which rests on the surface of the gelatin, and if shaken to the bottom is immediately replaced by another. One peculiarity of this bacillus is that the spore formation will go on regardless of nutrition, increasing in numbers as rapidly when poorly nourished as when well fed. These spores do not stain in ordinary dyes, which is a feature peculiar to this bacillus. The best source for cultivation is from hay.

Method of cultivation.—To obtain the bacillus subtilis from hay it is necessary to make an infusion. I here give Buchner and Roberts' method for bacillus subtilis, quoted by Dr. Dolly in his "Technology of Bacteria investigation." Digest a quantity of finely chopped hay for an hour, with as little water as possible, at a temperature of 36° C. The liquid is then drained off through a wire sieve and diluted with distilled water until it reaches a specific gravity of 1.004. If the fluid is acid in reaction it must now be neutralized with bicarbonate of soda, and not less than 500 c. c. placed in a flask, which is stoppered with a plug of cotton. The flask and contents are now retained for forty-eight hours at a temperature of 36° C., when the developed bacilli will have formed a dry looking pellicle upon the surface. From this pellicle inoculate a number of tubes of nutrient gelatin, in which media they thrive luxuriantly. By repeated inoculations and attenuation a pure culture is obtained.

If still further precautions as to its purity seem requisite, make several plate cultures from the purest tube culture of the lot. Where zoöglia can be seen microscopically, examine each plate under a microscope, and with a sterilized platinum needle pick out an isolated colony and inoculate another tube of gelatin with it. Make six or more inoculations so that a choice of cultures may be had, and in this way a very pure culture can be obtained.

My own cultures.—The way in which I prepared my inoculating fluid and the number of cultures it entailed I submit below:

On October 7, 1889, I made an infusion of hay after the method of Buchner and Roberts. From the pellicle which grew upon the surface I subsequently inoculated six test tubes of nutrient gelatin. From those inoculations I obtained dense growths, which, however, were impure. On the 13th I inoculated another series of twelve tubes from the best of those previously inoculated. From this inoculation I obtained a much purer growth. On the 18th I inoculated twenty-four tubes of nutrient gelatin, proceeding in a progressive manner, that is, I inoculated No. 1 from the best of the series of twelve tubes; No. 2 from No. 1, then No. 3 from No. 2, No. 4 from No. 3, No. 5 from No. 4, and so on, until the entire twenty-four were inoculated. From these I obtained excellent growths.

Wishing to obtain as pure a culture as possible I made plate cultures from them. In this way I was enabled to get isolated colonies on the plates, and found the best results from those tubes of the greatest attenuation, *e. g.:* a No. 24 tube inoculated from a No. 23, which came from a 22, etc., was the purest, and the colonies were isolated to a greater extent, rendering further inoculation more exact. I then studied these plate cultures under a low power, and picked out in this manner, with a sterilized needle, single colonies, with which I inoculated six tubes of nutrient gelatin, using a single colony for every inoculation. The cultures ensuing were exceedingly pure, and it was with these that I made my experiments upon rabbits.

Apparatus necessary for inoculation.—As I pursued the method recommended by Dr. Sternberg, I will describe the bulbs which bear his name. They are made by sealing one end of a piece of heavy glass tubing, heating in a blast flame until the glass becomes soft, and then blowing through the tube from the other end, a bulb about one inch in diameter is formed. The tube is then heated about one and a half inches from the bulb and drawn out into a capillary point, one or two inches in length. Besides these bulbs, some watch crystals, a pair of forceps, and a spear-pointed lance are necessary.

Modus operandi of inoculation.—The bulb is to be heated slightly over the flame, and the extremity of the neck, after breaking off the sealed point, is plunged beneath the surface of the liquid. As the air cools the liquid is drawn into the bulb, usually filling it to about one-third of its capacity. The neck of the flask is again sealed up, and the liquid which has been introduced is sterilized by repeatedly boiling the flasks in the water bath. They should then be placed in the incubator for two or three days, and if the contents remain transparent and free from film, they may be set aside as stock bulbs, to be used when required.

To inoculate the liquid in the bulb, the end of the neck is heated to sterilize the exterior, the bulb is gently warmed, and the extremity of the neck nipped off with a pair of sterilized forceps. The open extremity is plunged into the liquid containing the micro-organism, a minute quantity enters the tube and mingles with the fluid in the bulb, without fear of contamination by atmospheric germs.

The extremity of the neck is once more sealed up in the flame of a bunsen burner. A separate bulb for each inoculation is necessary, and the point must be passed through a flame before breaking off and introducing into the body of an animal. The fur or hair is to be cut from the part which is to be the seat of injection; then a spear-pointed lancet is to be passed through the flame of a bunsen burner and thrust into the prepared spot, clear into the connective tissue. The point of the prepared bulb is now passed through the flame, the point rapidly broken off with a pair of sterilized forceps and introduced along the side of the lancet. Heat is now applied to the bulb and the fluid is injected into the cellular tissue with considerable force.

Inoculations.—On the 16th of October, 1889, I inoculated six rabbits in the manner just described with my purest culture of bacillus subtilis. These rabbits, in an isolated room, received the best of care and were well fed with appropriate food. On December 4, 1889, I inoculated eight other rabbits with bacillus subtilis. On December 21, 1889, I inoculated eighteen more with bacillus subtilis.

The results of these different inoculations can be seen from the accompanying table of experiments.

TABLE SHOWING DATA AND RESULTS FROM THE INOCULATION OF RABBITS WITH BACILLUS SUBTILIS.

No.	Date of Inoculation.	Date of Death.	MORBID ANATOMY.
1	October 16.	October 24.	Ulcer at pylorus. Bladder full.
2	October 16.	November 5.	Coagulation. Necrosis of stomach, and also an ulcer on the smaller curvature. Bladder full.
3	October 16.	November 23.	Thickening of pylorus of stomach, causing stricture. Bladder full.
4	October 16.	November 23.	Enteritis with perforation and peritonitis. Bladder empty.
5	October 16.	November 25.	Strongyli in liver. Bladder full.
6	October 16.	November 26.	Chronic gastritis.
7	December 4.	December 5.	Ecchymoses in stomach, which was hyperdistended. Bladder full.
8	December 4.	December 6.	Strongyli in liver.
9	December 4.	December 10.	Strongyli in liver.
10	December 4.	December 10.	Strongyli in liver.
11	December 4.	December 10.	Coagulation. Necrosis of stomach.
12	December 4.	December 19.	Ulcer of stomach.
13	December 4.	December 19.	Acute pericarditis, and pleuritic adhesions. General peritonitis, with many adhesive bands of lymph.
14	December 4.	December 21.	Enlargement of iliac glands at point of inoculation.
15	December 4.	December 23.	Lungs slightly congested. Liver had a few small spots all over. Gastric ulcer, caused by the protrusion of a piece of straw.
16	December 21.	December 23.	Organs not distended. Liver contained a large node. Mesenteric glands enlarged. Bladder distended.
17	December 21.	December 23.	Large white node in left lobe of liver. Rectum distended with gas. Bladder normal.
18	December 21.	December 25.	Organs normal, save large node in left lobe of liver. Chicken-fat clot in ventricle of heart. Bladder full.
19	December 21.	December 25.	Chicken-fat clot in both sides of heart. Lungs congested. Liver full of strongyli. Spleen enlarged. Suprarenal capsule enlarged, and stomach distended.
20	December 21.	December 26.	Place of inoculation shows abscesses with phlegmonous inflammation of subcutaneous tissue. Organs all congested.
21	December 21.	December 27.	No apparent lesions.
22	December 21.	December 28.	No apparent lesions.
23	December 21.	December 29.	Coagulation necrosis of mucous lining of stomach. Strongyli in left lobe of liver. Bladder full
24	December 21.	January 4.	Post mortem *nil.*
25	December 21.	January 6.	Stomach much distended; also coagulation necrosis of same. Bladder full.
26	December 21.	January 6.	Distended stomach. Coagulation necrosis. Bladder full.
27	December 21.	January 6.	No special lesions. A little gastric inflammation
28	December 21.	January 6.	Strongyli in right lobe of liver.
29	December 21.	January 10.	No apparent cause of death.
30	December 21.	January 20.	Chronic peritonitis with adhesions. Catarrh of stomach, mucous membrane stripped off in patches, and ecchymoses of vomiting were apparent. Left lobe of liver was anæmic.
31	December 21.	February 12.	Stomach distended; there were ecchymoses and clots of extravasated blood. Red atrophy of the liver, which organ also contained strongyli. Bladder empty.
32	December 21.	February 29.	Punctiform hemorrhages in stomach. Coronary arteries plugged with clots. Bladder full.

CONCLUSIONS.

From the results of the foregoing experiments, it will be seen that the majority of those rabbits which were inoculated with bacillus subtilis died from disease of the gastro-intestinal tract rather than from any septic poisoning. The nodes, or strongyli, found in the liver are quite common to rabbits, being a form of parasite classed among the Gregarinidæ, one of the lowest forms of protozoa, and have nothing to do with the results of the experiments.

That the bacillus subtilis is incapable of producing septicæmia is evident. That rabbits of the same stock, side by side with these, treated in the same manner, only that the substance with which they were inoculated was tuberculous pus, developed septicæmia, tends to strengthen the belief in the non-infectious nature of the bacillus subtilis, which represents a class of non-pathogenic bacilli.

UNILATERAL OPHTHALMOPLEGIA, PROBABLY DEPENDENT UPON THROMBOSIS OF THE CAVERNOUS SINUS WITH ASSOCIATED BASIC MENINGITIS.

By CHARLES K. MILLS, M.D.

The following case has many points of clinical and pathological interest, and similar cases are of rare occurrence.

The patient, E. R., 55 years of age, was admitted to the Women's Nervous Wards December 4, 1890, in a condition of dulness and suffering. Her history, for several weeks before admission, was first obtained from a friend who boarded in the same house with her, and who seemed to be conversant with her health and affairs. This man stated that for about eight weeks she had suffered from neuralgic pains, which had gradually increased. They had begun in the left side of the face and around the left eye, but had spread, until they were diffused over the side of the head and back of the ear. She was compelled, because of the distress, to quit work two weeks before admission, and had been treated by several physicians, but with no benefit. No history of syphilis could be obtained, but this by no means made it sure that this causative factor did not exist. She had not been drinking for fourteen months, although previous to that time she had been an irregular drinker.

Five years before she had been a patient in the surgical wards of the hospital, and at that time had undergone an operation for the removal of the coccyx. Probably one week before admission—exactly when could not be learned—she began to lose control of the movements of the eye and of the eye-lid, the paralysis of the various ocular muscles rapidly deepening, so that the day before admission the eye had become completely immobile.

She was carefully examined shortly after admission. Her mental condition was one of dulness. She moaned and complained of pain, which she chiefly referred to the region above, around, and back of the eye. The left eye-ball was fixed and apparently somewhat protruding. She could not by the strongest effort of the will move this eye in any direction. The left upper lid drooped, an almost complete ptosis; the pupil of the same eye was dilated and irresponsive to light and accommodation.

Dr. G. E. de Schweinitz, ophthalmologist to the hospital, examined her a few hours after admission. No optic neuritis was present, and the patient's vision in both eyes was then good. Ophthalmoscopic examination showed slight haziness of the edges of the disc of the left eye, the veins fuller, and a few spots of fatty change in the choroid at the lower inner portion of the fundus. The conjunctiva was not injected at this time, and the lachrymal apparatus was normal. Nothing abnormal was discovered in the right eye.

The ears and hearing were also examined. The left drum was retracted, pearly white, gave a small light reflex and showed no perforation. Pressure on the superior wall of the external canal gave pain, and here was a small spot of redness with the appearance of granulations. Pressure over the mastoid, and also in front of and above the ear for a considerable distance, caused wincing and other active indications of suffering. Hearing was much impaired in this ear, but the degree of loss was not accurately determined. The diminution of hearing in this ear had begun about two weeks before admission and had gradually increased. In the right ear she had been very hard of hearing, almost deaf in fact, for many years, the result of an otitis of childhood.

An examination of her ears and hearing was also made a few days later by Dr. C. Jay Seltzer, who reported as follows: Left ear—slight deposit of cerumen on the walls of the external meatus. Membrane relaxed but translucent. Bone conduction over the mastoid and temporal region good. Hearing for voice slightly diminished; watch tick at one inch. Right ear—watch tick at one inch. Post-nasal space too narrow for examination because of congenital stenosis. Hypersecretion with incrustation. Diminished hearing in this ear due to catarrh of middle ear. Smell was impaired on the left side.

Examination for sensation showed loss to pain, temperature and touch, beginning near the vertex and extending downward to the left of the median line, and outward to the line of the outer angle of the orbit, involving the lids, the cheek beneath the eye, the side of the nose and the upper lip. The conjunctiva was almost completely anæsthetic. Anæsthesia was also present on the left side in the tongue, the gums, the roof of the mouth, and mucous membrane of the cheek. This loss of sensation was deepest below the eye. Over the forehead and left eyelid it was not so decided. As already stated, areas painful to pressure were present over the mastoid process, in the auditory canal, at a spot in front of the ear, and generally the left side of the scalp and upper face. The most tender places were those in front and back of the ear. She complained of numbness on the left in the lower lid, the nasal aspect of the cheek, the nose, and the lip; also of pain generally distributed over the left side of the head, and a feeling of discomfort or pain referred to the back of the eye.

She had an unhealthy mouth, and complained of much discomfort in the gums, teeth and stumps, particularly well back on the left side. She sometimes spoke of having a dumb, heavy pain in the mouth. Detailed examination showed that on the right side she had lost the molars and bicuspids, and in the left lower jaw the wisdom tooth and one bicuspid. The left upper molar and remaining bicuspid were jagged decayed stumps In the left lower jaw all the molars and bicuspids had been removed. The incisors were present in both jaws, but were loose and irregularly placed. The gums were retracted and somewhat spongy. Handling the stumps of the bicuspid and the molars in the left upper jaw gave her pain. Some of the pain caused by pressure in front of the ear seemed to be due to the decayed teeth.

A thorough examination was made with the view of determining, if possible, whether or not the proptosis was due to tumor, abscess or other lesion in the back part of the orbit. The eyeball could be nearly dislocated without pain, until the optic nerves could almost be reached, and this examination was convincing that no gross orbital lesion that could account for the protusion of the eye was present in the orbit.

Her tongue was coated and her breath offensive. Temperature, pulse and respiration were practically normal, temperature occasionally rising a little. No palsy, anæsthesia or changes in reflexes were present in the limbs, or anywhere, except as above noted.

The day after admission she was put upon twenty grain doses of sodium salicylate every two hours, on the supposition that she might have an uncomplicated neuritis involving the various cranial nerves paralyzed. After the first dose her loss of hearing decidedly increased, and in twenty-four hours had gone on to complete deafness; at the same time, no appreciable effect was produced upon the pain and paralysis. When the sodium salicylate was discontinued her hearing improved, and in about forty-eight hours was about the same as when she was first admitted.

She now complained of pain in and behind the right eye, and the right lid drooped slightly. The movements of this eye did not, however, appear to be affected, but she had, or thought she had, some haziness of vision.

One week after admission it was discovered that she was nearly blind in the left eye, and in a few hours this loss of sight was complete. The blindness had apparently come on rapidly in a few days, as it had not been discovered at the previous examinations made during two or three days after admission.

The subsequent history of this case, up to the time of writing the present paper, can be briefly recorded. After several consultations, chiefly with reference to the propriety of operating either for mastoid or aural disease, or for intra-cranial tumor, it was decided to first place her upon thirty grains of sodium iodide, three times daily, and mercurial inunctions; and these remedies were directed to be continued until constitutional effects were induced.

Within forty-eight hours she showed signs of improvement, particularly in her general condition and in the pain. The dulness of mind passed away, and day by day the pain and tenderness decreased, so that in ten days she was practically free from pain. The right eye showed no further tendency to become involved; the areas of anæsthesia slowly decreased.

Two weeks after beginning this treatment sensation was good in the roof of the mouth, and in the tongue and cheek, and the anæsthesia on the outside of the face and head was now limited above by a line four inches above the superciliary ridge, below by one parallel with the lower border of the nose, within by the middle of the left aspect of the nose, and outside by a line drawn through the external canthus. Tenderness was limited to the temporal region and was slight. No improvement in the motor paralysis had, however, taken place. The only unfavorable active symptom which appeared was conjunctival inflammation, probably trophic, both the bulbar and the tarsal conjunctivæ becoming red and swollen. The bulbar conjunctiva was pressed and folded into a ridge across the eyeball, just below the line of the iris. Under treatment by compresses of boracic acid, atropine, etc., this inflammatory condition gradually subsided.

At the time of making this report, about six weeks after her admission, the patient is free from both pain and tenderness, anæsthesia is limited to the small area above described, and the right eye is in a healthy state. The proptosis, immobility of the left eye, cycloplegia and iridoplegia still remain. The active inflammation within the cranium seems to have been arrested, but the patient is left with the ophthalmoplegia, which had resulted from inflammation, compression, and degeneration of the cranial nerves.

During the progress of this case, the patient was seen by Drs. de Schweinitz, Dercum, Lloyd, Hearn, Porter, and Seltzer, of the hospital staff. Among the diagnoses suggested and discussed were neuritis, gross lesion of the orbit, cavernous thrombosis, basic meningitis, aneurism or tumor at the base, and nuclear ophthalmoplegia. At one time it was considered probable that the case was one of inflammatory thrombosis connected with disease of the ear; at another, the same affection, but originating in the mouth. The advisability of operating for mastoid or aural disease, and even for basal tumor, was considered, but surgical interference was decided against after consultations. The worst teeth, however, were extracted, and efforts were made to put her mouth into as healthy a condition as possible.

Coupland[1] has reported a case of ophthalmoplegia dependent upon thrombosis of the cavernous sinuses which has many points of interest in connection with the diagnosis of the position and character of the lesion in this case. As the patient died on the third day after admission to the hospital, and as an autopsy was held, obscurities were cleared away, and the case is unusually instructive. Before admission to the Middlesex Hospital, where she was under Dr. Coupland's care, she had been a patient at the Royal Ophthalmic Hospital, Moorefields, under Mr. Burke, and notes of her case had been taken by Mr. W. Gay. Both father and mother had died of phthisis. Nothing suggestive of syphilis could be obtained. In November, 1885, she began to suffer from dreadful pain at the back of the eye and in the head, and she became deaf in the left ear. In two weeks she had diplopia and squinted, and in four weeks drooping of the left lid was noticed. January 16, 1886, marked proptosis of the left eye was present, and movements of the left eye had nearly disappeared. She had no outer movement at all in this eye. In the right eye the cornea did not quite reach the outer canthus, and the eye oscillated. The left pupil did not contract to light; the right was sluggish; both contracted to accommodation. Ophthalmoscopic examination showed nothing abnormal. On February 3, it was noticed that the right eye became bad after severe pain in the head, the left eye seeming to get better. Movements in both eyes, however, steadily decreased. She had much shooting pain in the right frontal region. The pupils ceased to contract to accommodation as well as to light, and vision steadily diminished. Ophthalmoscopic examinations were negative. "The sum total of her condition when attending Moorfields was: Proptosis, and more or less complete ophthalmoplegia externa of the left eye, following great supra-orbital pain, succeeded by proptosis of the right eye, with ophthalmoplegia externa and interna, (?) but with no distinct ophthalmoscopic changes."

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[1] Trans. Ophthalmological Society of the United Kingdom, Vol. V., 1886-87, p. 228-234.

On February 22, she was suddenly attacked with severe pain in the head and became unconscious, but the next morning spoke intelligently and rationally. After this she lapsed into a drowsy state.

The case is so well recorded that I will give the succeeding notes entirely in the language of Mr. Coupland.

"A rather ill-nourished woman lying low in bed, somnolent, occasionally moving her hands about in a purposeless way; can be roused by being addressed in a loud voice, and to the query whether she is in pain, she points to the right side of her forehead. The hair, which is thin, is brown interspersed with gray, a considerable lock of gray hair being seated over the right frontal region. There is notable tenderness of the scalp, especially in the left temporal region. The skin is dry, face dusky, slight injection of cheeks, but no enlargement of veins around orbit or elsewhere. The lips are very dry; the tongue dry and brown on dorsum, moist and creamy at margins.

"There is marked proptosis of each eyeball, to about an equal extent on both sides. There is complete ptosis on the right side, partial on the left; the lid, when raised voluntarily, uncovering about half the pupil. The right eye is absolutely immobile in any direction, and the left is nearly in the same condition, save for slight power of movement inwards, but not outwards. When at rest there is slight divergent strabismus. Owing, however, to the patient's mental condition, and the necessity for raising the lids to observe the eyes, examination is not satisfactory. Both pupils are large, the right being more dilated than the left, but neither reacts at all to light. Atropine causes slight dilatation of the left pupil.

"There is no optic neuritis; the vessels, both arteries and veins, in the right fundus, are comparatively small, the disc well defined and pale; the vessels are larger in the left fundus and the disc is slightly swollen, but its margin is well defined. On each side the conjunctiva is suffused, that of the left eye being more injected; both are quite insensitive, and the cutaneous sensibility of the face is impaired over left side as compared with right, though not entirely lost. There is no facial paralysis. There is deafness, but to what extent, or whether one ear is more effected than the other, the state of the patient does not admit to ascertain. For the same reason it is impossible to test her visual power. There is no discharge from either ear; there is some difficulty in swallowing; the tongue is protruded straight.

"The patient keeps her arms mostly folded across her chest, and there is very slight rigidity; when the elbows are extended she soon replaces the hands in the former position. The legs are flaccid, but the patient has some control over their movements. There is no plantar reflex on the right side, and but slight on the left; the abdominal and epigastric reflexes are absent on both sides. The knee jerk is absent on both sides; no ankle clonus can be elicited. Sensation is blunted over both lower extremities, more on the right than the left side, and more on legs than thighs. It is also deficient, but not absent, over the chest and abdomen. There is loss of voluntary power over the bladder.

"A mixture of iodide of potassium and mercury was prescribed. The following day her condition was unchanged. She lay with her head turned to the left, and cried out with pain if it was attempted to move it to the middle line. She muttered to herself constantly, but did not answer questions as a rule. Once when asked to draw the legs up, however, she said 'I shan't.' There is some conjunctivitis of the left eye.

"On March 12th she became rapidly worse. Pulse 148; respirations 60; face and lips vivid; coma deepening. She still lay with her head turned to the left, and pain was still elicited on movement, otherwise she did not speak at all. The left conjunctiva is more inflamed and chemosed in the lower half. About 6 P. M. stertorous breathing set in, and at 11.20 P. M. she died.

"The post-mortem examination, which was made by Dr. W. Pasteur, revealed basic meningitis, a considerable quantity of lymph covering the interpeduncular space and following the middle cerebral arteries for a short distance. The third nerves were quite imbedded in the exudation. The arteries were pervious; no evidence of tubercle. The dura mater in the anterior part of the posterior fossæ of the skull was also coated with soft, easily detached lymph (especially in the region of the body of the sphenoid and the clinoid processes), as far down as the medulla.

"The pituitary body was enlarged to nearly the size of a Barcelona nut, very vascular, but not apparently the seat of any morbid process. The cavernous sinus on each side was completely occluded by thrombus of old date; in the right sinus the contents were caseo-purulent; in the left, colorless and friable, not purulent. The circular and transverse sinuses were also full of pus and caseous looking material. The dura mater investing the sella turcica and body of the sphenoid was abnormally loose, and could be easily detached, but no disease of bone could be made out. The petrosal and other sinuses were empty. The tympana and mastoid cells did not show any signs of inflammation nor pus. There was a marked excess of cerebro-spinal fluid.

"The brain substance was unduly soft, and there was well marked dilatation of the lateral ventricles (posterior cornua especially). No lesion of any kind was found in the brain, pons or medulla. A portion of the lower cervical and upper dorsal cord was examined and appeared healthy to the naked eye. There was no affection of the spinal membranes."

In many of its features our case resembles the one reported by Coupland. In both proptosis and ophthalmoplegia externa beginning on the left, with more or less deafness, and pain in the head and back of the eye were present. Coupland's case went on to involvement of both sides and eventually to death, while in the our case, under the heroic use of sodium iodide and of mercury, the disease halted and the right nerves which were apparently threatened, did not become decidedly affected. It seems highly probable that the left cavernous sinus in our case may have been occluded by a thrombus, and that we had phlebitis chiefly confined to the left side. Coupland believes that in his case the left sinus was the first to become implicated, and it is probable that the plugging of the right sinus took place by way of the circular and transverse sinuses. He regarded the basic meningitis as secondary to the inflammation of the sinuses. Looking upon our case in the light of the same theory, it is probable that both phlebitis and meningitis have subsided under the treatment instituted, but that improvement did not take place soon enough to save the implicated nerves. The absence of marked symptoms of obstructed venous circulation was notable in both cases. They did not present œdema of the eyelids or other parts, nor enlargement of the facial veins, nor venous engorgement within the eye. In neither of the cases can the temporary deafness be thoroughly accounted for, but it may have been due to diffusion of the phlebitis and meningitis.

Coupland refers to the occurrence of phlebitis, which, having originated in the nasal buccal or pharyngeal cavities has extended by anastomosing veins through foramina in the floor of the skull, to the intracranial veins, sinuses and membranes. This is suggestive in connection with the condition of our patient's mouth. Alveolar abscess and necrosis of the jaw, facial phlebitis from erysipelas, facial and labial carbuncle, and orbital inflammations, have, according to him, been followed by inflammation of intracranial vessels and membranes, and have sometimes resulted in thrombosis of cavernous sinus.

An intimate connection between the veins of the mouth, face and pharynx, and those of the cranium is by way of the foramen of Vesalius. The middle meningeal veins, the deep temporal, the pterygoid, masseteric, buccal, alveolar, some palatine veins, and the inferior dental, form the pterygoid plexus, and this plexus communicates very freely with the facial veins and with the cavernous sinus through the foramen of Vesalius. (Gray's Anatomy.)

In the same volume of the Transactions of the Ophthalmological Society of the United Kingdom, in which appears the article of Coupland, are several other papers on ophthalmoplegia.

In one of these by A. H. Robinson, M.D. and J. Hutchinson, Jr., several cases are reported, two of them much like the one here recorded. In one of the two a post-mortem examination was held, and the other recovered under specific treatment. The post-mortem examination showed thrombosis, and inflammatory lesions almost confined to the region of one cavernous sinus.

With reference to the diagnosis of neuritis it need only be said that the history and progress of the case render it unlikely that simple neuritis, idiopathic or even specific in character, was present. It is unusual to find such a chain of symptoms from an uncomplicated inflammation attacking the nerves here involved. Doubtless, as in the cases of Coupland and of Robinson and Hutchinson, the nerves were compressed and inflamed in varying degrees, but these conditions were secondary.

The local examination alone was almost sufficient to exclude a gross orbital lesion. Aneurism was suggested, but no bruit, tinnitus or other distinctive symptoms lent support to the diagnosis. A basal tumor, next to the diagnosis settled upon, is the most probable; but among other reasons for deciding against it are the close localization of the lesion to the region of the cavernous sinus, and the absence of optic neuritis.

Against nuclear ophthalmoplegia several important points can be made. This is most frequently due to slow progressive degeneration. The case progressed slowly enough to dismiss the idea of an acute nuclear apoplexy, and yet did not take the usual course of chronic nuclear paralysis. Usually nuclear cases are or become bilateral. The nuclei of the fifth are not, as a rule, involved. The first nerves involved are those associated in functioning, not necessarily those which lie closest together, and usually ophthalmoplegia interna is not present. The occurrence of pain and tenderness, and the great improvement under treatment, are also in favor of the diagnosis given, and against nuclear disease.

The importance of early, positive treatment with specific remedies in such cases, is indicated by this history and also by the records of other cases.

[As the proof of this paper is passing through my hands, I have taken occasion to again examine this patient, and find that she has recently greatly improved. The mercurial inunctions were stopped, but the sodium iodide was continued and is still administered. The ophthalmoplegia is now plainly decreasing. She can elevate the lid to about one-third the usual height and can move the eye slightly in all directions—most upwards, and least outwards. The left pupil is smaller than the right, but responds to light. She remains, however, blind in the left eye. The area of impairment of sensation has further contracted, and is now confined to the forehead, upper eyelid and conjunctiva, and on the forehead spots where sensation is returning are to be found.]

AN ACCOUNT OF A CASE OF TUMOR OF THE CEREBELLUM COMPLICATED BY DROPSY OF THE VENTRICLES. EXPLORATORY OPERATION, TAPPING OF VENTRICLES. DEATH ON THE FIFTH DAY.*

By F. X. DERCUM, M.D., and W. JOSEPH HEARN, M.D.

DISCUSSION OF THE CASE BY DRS. MILLS, SINKLER, DE SCHWEINITZ, DEAVER AND BALL, WITH A NOTE BY DR. KEEN.

HISTORY AND SYMPTOMS BY DR. DERCUM.

G. M., æt. 28, was admitted to the nervous wards of the hospital under my care on November 12, 1890. He had been for some time previous in the German Hospital, and Dr. Frese, chief resident physician of the same, gave me very kindly the following account of the patient:

He had been admitted to the German Hospital five months ago complaining of headache (which was general) and pain in the back of the neck. He was also subject to epileptiform attacks, during which consciousness was lost, while his arms and legs became very stiff. An ophthalmoscopic examination disclosed a well marked, choked disc on each side, with much impairment of vision; marked deafness also was noted. His symptoms gradually increased in intensity, until, finally, blindness and deafness were absolute. He was also subject to spells of great excitement, during which he would scream at the top of his voice. His actions were for a time so violent that he had to be for a short period confined in the cell of the hospital.

Dr. Ball, under whose immediate care he was, says that the man did not impress him as being actually insane during these attacks, but that he screamed at the top of his voice as though making a vain attempt to make himself hear. During the intervals nothing unusual was noted about his movements or about his gait. His walk was neither spastic nor ataxic, but simply like that of a man who was generally weak. His urine was free from albumen or sugar.

When admitted to my wards his condition was as follows: marked general weakness, most marked in the legs; absolute loss of sight and hearing; and, also, as far as we could determine, absolute loss of smell and taste. Cutaneous sensibility seemed to be everywhere well preserved. No paralysis of sphincters. Slightly diminished knee-jerks.

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*Paper read and discussion held before the Philadelphia Pathological Society, December 11, 1890.

The patient was a German, and communication with him was only possible by writing with the index finger upon the palm of one of his hands in German script. Under these difficulties we learned again of his headache, that it was agonizing, and, if possible. steadily growing worse; and, further, that it was most intense upon the left side and anteriorly. When his head was gently percussed no pain was elicited anywhere except in the left frontal region. When his grip was tested it was found that the right hand was markedly weaker than the left. The epileptiform attacks were also repeatedly observed. In these his arms and legs would become very rigid, and to the rigidity would be added a rapid clonic movement of small extent. The head was thrown backward and held in fixed position, and in one of the attacks in which I saw him it was slightly turned to the left, while the eyeballs rotated outward and to the left.

After an ophthalmoscopic examination, Dr. de Schweinitz reported marked. double optic neuritis, dilated and immovable pupils and nystagmus, also slight divergent strabismus, due to loss of fixation.

At the German Hospital, Dr. Frese had made a very thorough trial of antisyphilitic remedies, and had indeed, noted some improvement during their use. This improvement, however, proved to be transient. Notwithstanding when admitted to the nervous wards mercurial inunction was again resorted to, but without noticeable result.

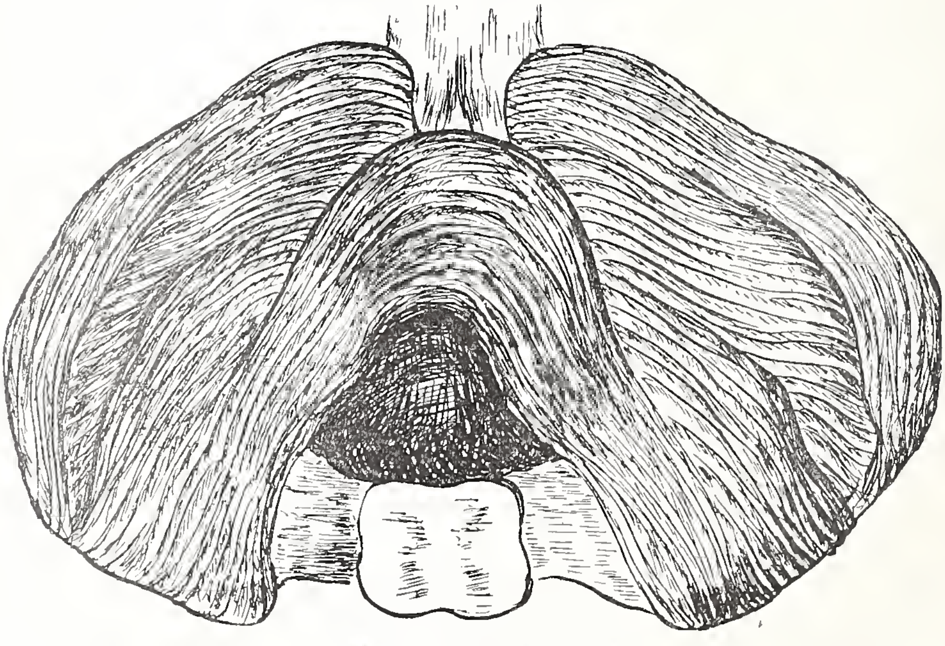
The patient's condition growing steadily worse, I called my colleague, Dr. Mills, into consultation. After reviewing the facts, we deemed it probable either that the man was suffering from a tumor in one of the silent regions of the brain or from some more general disturbance, such as an internal hydrocephalus. Various facts pointed to the left frontal region as the seat of the disturbing cause. In the first place, the headache was most marked in this region; secondly, this region was decidedly painful to percussion, while the remaining surface of the skull was not; thirdly,—a fact not mentioned above—the right side was most involved during the epileptiform attacks, and lastly, the right arm was notably weaker than the left. An absolute diagnosis was not possible, nor was any attempted. Dr. Mills inclined towards the theory of tumor, the writer towards that of hydrocephalus, either primary or secondary to some other cause.

The propriety of an exploratory operation was discussed, together with Dr. W. Joseph Hearn of the surgical staff, and finally, when marked mental failure had begun to make itself noticeable, decided upon. When admitted the man had been as intelligent as could, under the circumstances, have been expected. To questions written upon his hand in his native language he gave intelligent answers, and frequently volunteered information regarding his condition. After the lapse of some ten days, however, it began to be more difficult to communicate with him. Words and sentences would have to be written again and again before he would comprehend their meaning, and his replies were made less readily and were less satisfactory than before. Evidently he was losing ground.

Finally, on November 26, two weeks after admission, an exploratory operation was undertaken in the presence of the neurological and surgical staffs of the hospital, Dr. Hearn operating. The details of the operation I leave, of course, to Dr. Hearn. Suffice it for me to say that the exploration was directed to the left frontal region, a large oblong opening being made in the skull slightly in advance of the hand centre and extending well forwards. In addition to great vascularity of the brain, no noteworthy feature presented itself until the dura was opened. Here it was found that the brain bulged greatly, and further, that it fluctuated markedly upon palpation. Exploratory puncture was, after a brief consultation, decided upon, with the result that between five and six ounces of fluid escaped from the left lateral ventricle. The previously protruding brain now sank within the cranial cavity, so that its surface was half a finger's breadth from the surface of the skull. The operation was terminated at this point.

In a few hours the patient rallied and recognized those about him as before through the sense of touch. On the following day I carefully examined him and found that the power of smell and taste had undoubtedly returned, and the resident in charge maintained that there had been a distinct return in the sense of hearing; this I failed to confirm. There was absolutely no change in the blindness, though the pupil reacted distinctly to light. These symptoms of improvement were, however, maintained but a short time. On the third day a hernia cerebri began to make its appearance, and concomitantly there set in progressive mental failure, coma, and finally death on the fifth day.

Autopsy.—December 2, 1890, the dressing being removed, a small amount of bloody and watery discharge escaped from the wound, which was free from odor; but little attempt had been made at union, and under the flap some effused blood was found. Through the trephine opening a large soft mass extruded, flecked here and there with dark green masses, looking like altered extravasated blood. The hernia itself projected an inch or more beyond the opening, and for an inch or more over its edges; it was reddish in color and thoroughly disorganized. The calvarium was removed, the hernia readily slipping back through the trephine opening. Its inner surface was found very irregular, being studded with minute osteophytes, especially in the left parietal region; it was not especially adherent to the dura. To either side of the attachment of the longitudinal sinus were found marked and numerous depressions, the bone being in these areas quite translucent.



TUMOR OF CEREBELLUM.

Dark portion in centre of engraving represents tumor.

The dura was everywhere tense, except in the left temporal region and in the immediate neighborhood of the wound. Veins of dura in neighborhood of longitudinal sinus, full and prominent. Pacchionian bodies quite large and numerous, and corresponding to areas of thinning in the calvarium. During manipulation of dura in removal, escape of cerebro-spinal fluid was noted from the wound. Inner surface of dura smooth, but showing numerous thickenings corresponding to the roughness on the inner surface of the calvarium.

The hemispheres exhibited no peculiarity other than a change of consistence in the left hemisphere in the neighborhood of the wound. No where was any induration. On removing the brain and inspecting the base, the basi-temporal surfaces, and especially the lips of the temporal lobes, were soft and œdematous. The cerebellum showed no appreciable change of consistence in either hemisphere or in its middle lobe. The pia-arachnoid showed some infiltration along veins and fissures.

On opening the left lateral ventricle it was found excessively dilated. At the highest point of its anterior branch, involving neither the inner nor the outer wall, was found a small reddish wound, the inner end of the puncture made by the trocar. The right lateral ventricle was also found very much dilated, though less than, the left. Foramen of monroe also large and dilated. Velum interpositum infiltrated and whitish. Chorid plexuses not excessively cystic. Walls of third ventricle unusually pale. No noticeable change in quadrigeminal bodies, pons or crura. On carefully separating the quadrigeminal bodies from the cerebellum a large jelly-like mass the size of a pigeon's egg was revealed, occupying the central lobe of the cerebellum. Peripheral portion of the tumor was excessively soft; centrally and to the right it felt much firmer. It was firmly attached to and merged with the white substance of the right hemisphere, and appeared to have originally sprung from this region. It was simply in contact with the white substance of the central lobe and with that of the left hemisphere, having hollowed out a space for itself in these structures by pressure and absorption. Below and anteriorly the roof of the fourth ventricle had been partially destroyed by the same process.

In reviewing the symtoms, it is remarkable that no ataxia was at any time present. Even the nystagmus was not decisive as it is known to occur in disease of the second frontal convalution. Again, it would have been impossible to explain the total loss of hearing, smell and taste through cerebellar symptoms alone. Evidently these symptoms must be referred to a great general increase of intra-cranial pressure. Such increase of pressure was afforded by the excessive internal hydrocephalus, the latter itself having its cause apparently in the occlusion through pressure by the tumor of the aqueduct of Sylvius. It can, perhaps, be readily understood how an increase of intra-cranial pressure, associated also with œdema, as noted in the autopsy, could lead to a loss of taste and smell. Whether the blindness is to be attributed to a like cause or to descending neuritis I will leave to Dr. de Schweinitz to discuss. It seems, however, that as regards the deafness it was probably a direct result of the increased pressure. It is readily conceivable how increased intra-cranial pressure could affect the functions of the labyrinth, as there is a direct communication between the space of the perilymph and the intra-cranial cavity by means of the aqueducts of the vestibule and cochlea. On the other hand a descending neuritis of the auditory nerves is not inconceivable.

REMARKS ON THE OPERATION, BY DR. HEARN.

In the performance of the operation there was nothing especially marked in the preliminary steps. The bone was quite soft and was readily perforated by the trephine. The opening in the skull was made in the left frontal region with the idea of a possible tumor at this point, but no growth was found; however, as soon as the button of bone was removed and the dura mater opened, the brain projected up and through the opening; it pushed up and out of the opening in an extreme manner, the intra-cranial pressure being greater than in other cases upon which I have as yet operated.

Not finding any tumor mass in the opening or in the immediate vicinity, because of the tremendous pressure within the brain, it was decided to puncture the ventricles with a view of relieving, at least temporarily, the increased tension, and to make an exploration by means of the puncture. This was done, and the trocar being directed downwards, backwards, and somewhat outwards in the direction of the ear, the instrument entering at the upper part of the lateral ventricle; and three or four ounces of a serous fluid being evacuated, the brain at once sank below the level of the internal plate of the skull.

Nothing resembling tumor formation was discovered in making this aspiration, and after fixing in place horse hair drainage from the ventricular cavity, the wound was dressed. In the use of this means of drainage a mistake was probably made. At first the man seemed to gradually improve, the intra-cranial pressure being relieved, and there were evidences that the sense of hearing to a degree returned after the operation. Soon, however, this poor drainage failed and the case failed with it, the intra-cranial tension returning and causing the appearance of a large hernia cerebri.

If I were to be asked to operate on a similar case I should avoid the use of the horse hair drainage and put into the path of the trocar a small glass tube or some other means of free drainage. The effect of the operation seemed to be favorable, the recognition of persons being probably somewhat improved, and the auditory sense seeming to return in slight degree. In this connection it was mentioned by the resident physician that after the operation, while there did not seem to be any return of sight, there was noticed a distinct light reaction of the pupils.

DISCUSSION.

DR. CHARLES K. MILLS: From this case we may learn some points as to the local diagnosis and treatment of such cases. From the patient's condition and his symptoms it seemed certain that he was suffering from brain tumor, and probably a tumor situated in the antero-frontal region of the brain, although a tumor in one of the cerebellar hemispheres was considered. Of the symptoms presented at the time, and which now seem prominent, and evidently those upon which the diagnosis should have been made, two or three should be especially noted.

The first of these was the pain in the back of the neck and head, to which as an early symptom perhaps more force should have been given. The total deafness, coming on as it did, just as does the blindness in the case of the choked disc cases of tumors of the brain, was especially notable. When tumors of the brain occur in association with total deafness, they are especially likely to be found in or near the position of this growth. In this case I should liken the development of the deafness to the production of choked discs. As the orbit is in communication with the cerebrospinal cavity, so the internal ear communicates through a small canal, and if choked disc is produced by pressure causes, or by the extension of inflammatory processes along the nerve tract, here, in a similar way, has probably occurred a sort of auditory choking. The pressure in this case was in the immediate neighborhood of the internal auditory apparatus. The obstruction of the iter led to the distention of the lateral ventricles and the production of intense general intra-cranial pressure.

The character of the spasm—a bilateral one of an explosive nature, a tonic spasm of all the extremities upon which was imposed a clonic movement—is also suggestive. A spasm arising from terrible irritation of the fifth nerve in the dura is similar in character. It is true that from tumor in the extreme frontal region we may have spasm, but were it located on one side of the brain, it is not likely that the spasms would be evenly bilateral as in this case. The nystagmus was also an important symptom.

The tapping of the ventricles brings up the question of the propriety of such procedure under any conditions as far as hope of cure is concerned. I cannot look upon the measure as any but an unphilosophical one, except in one or two affections; perhaps, for instance, in certain cases of hydrocephalus in which the size of the bony encasement of the brain is controllable. In this case it should be done gradually, with constant pressure applied to the outside of the skull, the course of the operation running over weeks or months. It may also be resorted to when pus or blood has been diagnosticated in one of the ventricles. A beautiful balance of pressure exists between the fluid within the ventricles and that without, just sufficient to preserve the proper position and relations of the brain substance. If this be disturbed, positive hurt to the brain may occur. The same reasoning applies to porencephalus. For temporary relief, however, ventricular tapping may sometimes, as here, be justifiable.

I may be allowed to take exception to the opinion as to drainage in such cases. It is probably better not to drain, but if the ventricles are to be drained at all for temporary results, I would not have a rapid form of drainage, because of the much greater disturbance of the pressure-balance thus induced between the ventricles and the exterior of the brain, but would prefer the slow and more gradual drainage.

DR. WHARTON SINKLER: The case in hand has bearings upon the practical relations of both the operation and the diagnosis of tumors in this position. The symptoms of lesions of the cerebellum are by no means constant; but there were here symptoms which are commonly ascribed to tumors of the cerebellum. It is to be said that absent from this case were certain symptoms which are to be expected in cerebellar tumor; for example, lesions of the middle lobe of the cerebellum as a rule are accompanied by ataxia or unsteady gait, but nothing of this sort was observed. On the other hand, the pain in the occiput, the nystagmus, and that curious symptom which is noted in cerebellar tumors, namely, absence of or diminished knee-jerk, were present.

The loss of the senses, gradual and total, was probably due to the gradual development of excessive intra-cranial pressure, but I agree with Dr. Mills as to the futility of draining away the fluid in these cases of intra-cranial pressure, with the expectation of any but very temporary relief.

Dr. G. E. de Schweinitz: I had the opportunity of examining the eyes of this case two weeks before operation, and found a high grade of what formerly was known as "choked disc," a term no longer so sharply limited to certain cases as was done when this nomenclature was first introduced. Each disc was swollen eight dioptries, the swelling being gray-white in color, confined to the intra-ocular end of the nerve, and unassociated with retinal changes save only one small hemorrhage on the outer side of the swollen area of the right eye. The pupils were fixed and dilated. There was total blindness, lateral nystagmus, and divergent squint.

The complete deafness from which this man suffered rendered it impossible to communicate with him except by writing German words upon the palm of his hand. Hence it was difficult to decide whether the divergence was due to paralysis of a portion of the third nerve, or to the loss of fixation from the blindness. It seemed, however, that the excursion of the eyeballs was good in all directions, and that hence the squint was not paralytic. You all know, as was first pointed out by Hughlings-Jackson, that it is possible to have extensive optic neuritis with the preservation of perfect or but slightly impaired central vision, and I have myself seen and recorded several such cases. Here, without the appearance of retrograde, change in the discs or the onset of atrophy, there was absolute loss of vision.

It is a clinical fact, the explanation of which is not quite clear, that in the optic neuritis, associated with tumors of the cerebellum, there is often from the earlier stages very complete loss of vision. This fact, taken into consideration with the height of the swelling, the lateral nystagmus, and the absence of all other localizing symptoms, with perhaps the single exception of the deafness, led me to describe the case to my house doctors as one, in all probability, of tumor of the cerebellum, involving the flocculus. As has been observed, from the specimens which lie upon the table, the tumor has a situation in this region. At the post-mortem examination I removed the eyes, which I have not with me to demonstrate, as they are not yet prepared for section, but of which I may say that the sheath of the optic nerve was distended with fluid, as usual the greatest distension being a short distance behind the eye, narrowing close to the sclerotic, the whole producing a somewhat ampulla-shaped swelling. When these eyes have been prepared, hardened and sectioned, I will make an exhibit of them.

Dr. Dercum has stated that I will dwell upon the mechanism by which intracranial disease sets up an optic neuritis. It is well known, of course, that von Graefe originally described two conditions seen by the ophthalmoscope, one of which he designated "descending neuritis," having as its characteristics slight change in the discs and a tendency to invade the adjacent retina, and where the inflammation was assumed to have travelled directly from the inflamed meninges to the optic nerve; and the other which he designated "stauung's papille," characterized by great intra-ocular change, hemorrhages and the like, and which he explained as due to an effect on the circulation of the eye by increased intra-cranial pressure obstructing the return of the blood from the eye by compression of the cavernous sinus. This theory ceased to be tenable when the demonstration was made that the free communication between the supra-orbital and facial veins nullified the influence of pressure on the cavernous sinus. From that time on a series of theories have been developed to explain the mechanism of changes in the intra-ocular end of the optic nerve associated with intra-cranial lesions, and for which the suitable general term "papillitis" has been suggested by Leber, because it does not commit the appearance to any unproved theory in pathology.

I will not occupy your time by reviewing the various hypotheses which have been advanced, but would state as my belief that in a great number of cases the production of papillitis in intra-cranial disease depends upon an inflammation which may be traced along either the sheath or the nerve, and then the resulting papillitis in sight, or that it arises from causes which are not yet known, becomes intense and presents the appearance of mechanical congestion. If, at the same time, there is distension of the sheath of the nerve with fluid, as there was in this case, but which is not always present, this intensifies the process in the intra-ocular end of the nerve, especially, as has been pointed out in recent investigations, if this fluid possesses pathogenic properties.

To recapitulate, the eye symptoms in this case were significant, and at least indirectly pointed to cerebellar tumor, in so far as the presence of a high grade of papillitis associated with complete blindness, together with lateral nystagmus, are concerned, the latter symptom, however, not being necessarily of localizing importance, inasmuch as it could occur simply in a blind eye, and, moreover, is seen also in lesions in the anterior portion of the brain, as Dr. Mills has pointed out.

Dr. Sinkler will remember that we have studied together at least one case of almost certain cerebellar tumor in which the symptoms are not unlike the one that comes before us this evening, namely: high swelling of the intra-ocular end of the optic nerve, early and complete blindness, and violent headache unassociated with other localizing symptoms. The best explanation of the loss of the other senses seems to be that which bases it upon the effect of the greatly increased intra-cranial pressure, owing to the accumulation of fluid in the lateral ventricles.

Dr. John B. Deaver: I think this is the third case in the city in which the tapping of the lateral ventricles has been done, and in all without any ultimate result. I must confess that I cannot as yet commit myself as favorable to this operative procedure, except when done to remove a blood-clot or a collection of pus. The operation when done for the removal of a simple serous fluid (to relieve intra-cranial pressure) is certainly the application of a very active therapeutic measure to accomplish but a temporary purpose. If, as Dr. Mills has stated, the idea of continuous drainage is unphilosophical, must not the operation to establish such be a questionable measure?

Dr. Hearn has referred to two complications following the operation, one occasioned by the ventricle refusing to drain properly, and one by the development of a hernia cerebri. The former, I am inclined to think, would not have occurred if, instead of a horse hair, rubber, or better, a silver drainage tube with flanges, perforated so that it could be fastened to either the head or the dressing, had been used. The temporary blockage of the drainage and the consequent increased intra-cranial pressure occasioned thereby was probably the active factor in causing the hernia cerebri.

Prof. Dennis, of New York, has reported a case in which he tapped the lateral ventricles for intra-cranial hemorrhage, removing a blood-clot therefrom. In this case the patient died, but I cannot help regarding such a condition as one of the few demanding such operative measures.

Dr. M. V. Ball: I should like to call attention to an interesting symptom in the case which has not as yet been mentioned in connection with the history or discussion. While in the German Hospital a marked polyuria was noted, as much as sixteen to twenty-six pints of a pale urine of a specific gravity of 1004 being passed by the patient within the twenty-four hours. At the same time there was a corresponding polydipsia, nearly the amount of fluid being imbibed during the same time. There was no sugar or albumen in the urine.

During his presence in the German Hospital, there were intervals of apparent seeing of light, which were, however, of very short duration (a few seconds), although of frequent occurrence. His feeling (sense of touch) was extremely acute and delicate, the patient being able to distinguish between the different persons about him in the ward by the sense of touch alone.

Dr. Francis X. Dercum: While at the present it is possible while looking back to recognize the importance of this or that symptom, it should be remembered that in attempting the actual diagnosis the symptoms were elicited only with the greatest difficulty, and many of them were vague and indistinct. In fact, the operation itself in the uncertainty of the case, was undertaken in the light of an exploration only.

Several years ago I had under my care a case presenting many of these symptoms, except perhaps the deafness, which was less marked. In this instance I decided against an exploratory opening, and upon the post-mortem table, to my chagrin, was found a tumor of the frontal region which might easily have been removed by the surgeon, as it had sprung from the membranes. Recalling this case, I cannot help regarding the present one as having demanded exploratory operation, and I look upon the operation of trephining in this light as having been eminently justifiable. So too, a proper exploration of the brain demanded the insertion of the trocar and the aspiration of the ventricles, the trocar being really a means of diagnosis as to the nature of the fluid (pus, blood, etc.), causing the symptom of brain fluctuation, and also as to the presence of any new growth in the brain in the neighborhood of the skull opening.

In this instance the tapping led to the inference that there really did exist a brain tumor, the probable position of which, however, precluded further interference. Thus, in the presence of such symptoms as were afforded by the case, and in the presence of impending death without any operation, the trephining and tapping seem to me to have been very proper procedures, and I should not hesitate if placed in the same position again to advise the same steps.

Dr. W. Joseph Hearn: While there may be, perhaps, questions raised as to the propriety of tapping the ventricles in such cases as these, the appearance of such excessive pressure as to cause the brain to bulge up and out of the trephining opening as it did, seemed to me to be quite sufficient to justify its relief, if only for a short while. It would seem that after the operation, before the reaccumulation of the fluid, that the man's condition was really improved, since there is evidence that the sense of hearing returned to him at least in a slight degree. Further, I have seen pus in this very position post-mortem, where operation was refused; and I should expect that trephining in such cases would be of great benefit, temporarily if nothing else; so that I should look upon the operation of tapping as really proper from the point of view of an exploration, possibly of great benefit, and almost certainly not of very serious consequences, inasmuch as the measure is only employed in the last stages.

*NOTE BY DR. W. W. KEEN : The bulging of the brain after opening the dura was so great that had tapping not been done, it would have been impossible to readjust the flap of scalp so completely as to bring the edges of skin together, and the same hernia would have followed. At the same time we should have had no knowledge of the reason for the increased intra-cranial pressure, and there would have been no relief to the intense and agonizing headache. The relief to this last symptom at once, and the comfort it afforded the patient, was of itself a sufficient reason, in my opinion, to justify the tapping.

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* Dr. Keen was present at the operation but was unable to attend the discussion.

TREMOR SIMULATING MULTIPLE CEREBRO-SPINAL SCLEROSIS, BUT WITHOUT COARSE CENTRAL LESION.

By F. X. DERCUM, M.D.

The following case is reported because of the presence of a persistent tremor which always presented the same features, and because of the result of the autopsy.

A. B., a mulatto, aged fifty-five years, male, was admitted to the medical wards of the hospital September 22, 1888. No family history was elicited, except that his sister had died quite suddenly of apoplexy. His statements regarding himself were equally meagre. He said that seven years ago after drinking a large quantity of cold water, he had had "rheumatism and diabetes." Shortly after this his left leg and arm began to tremble, and sometime later the trembling spread to the right arm and leg. He had never had apoplectiform attacks, nor could a history of any other previous illness be obtained. He complained of thirst and epigastric pain, but evidently these symptoms were not marked. A physical examination resulted negatively. The heart was normal. There was nowhere œdema. Repeated examination of the urine failed to disclose the presence of either sugar or albumen, nor any change in specific gravity.

The tremor was coarse and became much exaggerated upon voluntary movement. The gait was somewhat spastic, and because of the tremor, very difficult. According to his own statements he was gradually getting worse. Alcoholism and syphilis were persistently denied. He was transferred to the nervous wards October 9. Here it was noted that the tremor involved the hands, the tongue, the face, and to some extent the legs. It was most marked upon the left side. It was again observed to be markedly increased during voluntary movement, to cease almost altogether when the patient lay down, and further, to cease absolutely during sleep. The knee-jerks were much exaggerated, especially the left, and ankle clonus could be elicited on both sides. Nowhere could any loss of sensation be detected.

The man seemed at times a little slow in answering questions, and sometimes his answers were conflicting, but no delusions or other mental symptoms existed. Later on, however, decided mental deterioration became evident. Tremor of the mouth became very marked during attempts at speaking, so that speech was frequently interrupted, slow and retarded. The eyelids drooped and were tremulous. The pupils were now observed to be fixed and slightly unequal, the right being the larger and somewhat irregular in outline. Nystagmus was also present, and there was in addition, coarse tremor of the head. There was some diminution of the grip of the left hand, the grip being very tremulous and the object grasped seemed to be with difficulty let loose.

He gradually grew weaker, and was finally compelled to remain in bed. Some hyperæsthesia now made its appearance upon the right side. The knee-jerks, however, from having been much increased, became normal on the right side and diminished upon the left. There was also noted a tendency to contracture at the knees, but this was not persistent. As he lay in bed, there was continual coarse, irregular tremor of the left hand and arm, almost chronic in character, and which became as before greatly increased on voluntary movement. The right arm was free from movement during rest, but voluntary effort induced tremors. Decided dementia now set in. He spoke with increasing difficulty. During the last few weeks of his illness he lost control of the sphincters. The tremor, however, persisted, especially upon the left side, and became more pronounced upon attempts at examination and manipulation.

A note made August 16, 1889, states that the patient lay apparently asleep with legs drawn up. The left eye was not entirely closed. The pulse was of moderate volume and tension, regular and not rapid. On attempting to feel the pulse, the patient appeared to rouse up and tremor made its appearance in the arms and hands. After a minute or two the movements ceased and the patient relapsed into his former quiet condition, the eyes, however, remaining open and the breathing hoarse and rattling.

The patient died August 18, 1889. The temperature during the three days preceding, ranged persistently close to 103°, the pulse scarcely deviating from the normal, while respiration was slightly increased in frequency. During the last two days of life swallowing became difficult and ultimately impossible. The rectum was not retentive, and he was several times given milk and whiskey through a flexible catheter introduced into the œsophagus.

Autopsy.—August 19. Body of a well-nourished colored man with no special external peculiarities.

Cord.—Dura normal. Pia and arachnoid normal, but vessels unusally prominent. On section cord seemed softer than normal.

Brain.—Dura normal. Pia-arachnoid thickened, opague and œdematous; not adherent. The vessels full and dilated, and at the base distinctly atheromatous. The lateral ventricles were much dilated and their walls congested, the vessels containing dark and fluid-blood. On section of brain no areas of softening or induration are seen; no evidences of hemorrhage or other gross lesion apparent. Cortex pale and œdematous.

The general post-mortem revealed little of interest. The left pleura was obliterated by old adhesions. Hypostatic congestion of both lungs. The heart was dilated and its muscles somewhat softened. The aorta and larger vessels were atheromatous. The liver and spleen presented nothing worthy of note. The kidneys, however, presented evidences of chronic interstitial nephritis.

The brain and cord were carefully hardened in Müller's fluid, and sections were prepared according to Weigert's method by Dr. Hatch, one of the assistant pathologists to the institution. A careful study of these sections, which included all of the regions of the cord, the medulla, the pons, the crura, the basal-ganglia and capsules failed utterly to reveal any areas of sclerosis. The portions of the cortex preserved for examination were unfortunately lost, and it is not improbable that changes—not sclerotic however, but simply degenerative in character—might have been found here. Degenerative changes, however, were not apparent elsewhere.

This obscure case is exceedingly instructive, showing how dangerous it is to rely upon the presence or prominence of a single symptom for diagnosis. The tremor was excessively misleading. It was the earliest, most constant and most prominent factor in the case, and at the same time its features were unvarying. The apoplectiform attacks so frequent in the history of multiple cerebro-spinal sclerosis were wanting, it is true, but as is well known they are occasionally absent. In looking over this case, however, and giving full weight to the progressive and rapid mental deterioration, the fixation and inequality of the pupils and the progressive muscular weakness, it becomes very probable that the patient before us was really a case of paretic dementia in which neither the mental symptoms were typical nor the speech characteristic, and in which for some reason, the tremor became an unusually marked and fixed factor. This case further gives rise to the suspicion that other cases reported as simulating multiple cerebro-spinal sclerosis, and yet presenting no lesion, find a similar explanation.

THREE INTERESTING SPINAL CASES. I.—ATAXIA WITH PROGRESSIVE MUSCULAR ATROPHY. II.—ATAXIA WITH HEMIANÆSTHESIA. III.—HEMORRHAGE INTO THE CAUDA EQUINA.

By WHARTON SINKLER, M.D.

From notes by T. J. HARRIS, M.D.

The first is a case of tabes in which there is an unusal degree of muscular atrophy. According to the patient's statement, the atrophy came on quite suddenly, about four years after he had had symptoms of ataxia. As to the abruptness of the onset of the atrophy he is no doubt mistaken, but it certainly is a fact that after the attack of vertigo of which he speaks, the atrophy progressed rapidly. Muscular atrophy affecting one limb, as we all know, is not unusual in ataxia, but it is rare to see all the muscles of the body affected as in this patient.

Case I.—J. P., Irish, laborer, aged fifty-three ; his family history is negative. He came to this country at the age of sixteen. In Ireland he had measles, scarlet fever and small pox, and at seventeen had pleurisy. He has worked hard all his life.

There is no history of alcoholism or venereal disease. For some years he has worked in the gas works, where he was exposed to much wet and dampness. Five years ago, when otherwise well, the patient began to have severe pains in his epigastrum ; during these attacks he felt as if he would smother. These continued for a year, when he began to have pains in his knees and legs of a piercing nature. Four or five months later he noticed that he could not walk as well as formerly. His gait grew progressively worse until last January. Since then he has only been able to walk with the greatest difficulty, and with the aid of a cane.

Last January he had an attack of vertigo, after which he noticed there was a considerable loss of power in both hands. At that time his hands began to waste simultaneously, and his feet began to feel numb. At the end of eleven months he became quite helpless.

His condition at present is as follows : He walks with great difficulty, his legs widely straddled, his knees bent, his feet raised but a short distance from the ground.

It is impossible for him to stand with his feet close together. The knee-jerk is absent on both sides. Sensation is not absent, but blunted all over the legs, especially on the outer sides. The same condition is noticeable in the arms. The interrossei of both hands are much wasted. The thenar and hypothenar eminences are flattened. There is wasting in the deltoids and supra-infra spinati. All the muscles of the body react to the faradic current, and the use of the galvanic current shows normal muscle reaction. Five fibrillary contractions are seen in the wasted muscles. Control is retained over the bladder. The bowels are much constipated. The pupils are equal, medium in size, and respond to light and distance. The muscles of the legs are also atrophied, but not to the same extent as the muscles of the upper extremities.

The second case is also one of tabes, and in this patient, associated with anæsthesia. The loss of sensation was so complete that a pin could be thrust into any part of the left half of the body without being felt. The patient was under observation for five months, and there was no material change in the distribution of the analgesia. At times there was some loss of pain-sense on the right side though it was not constant. The patient improved as to his walking while in the hospital, but he continued ataxic. The history of the attack, including sudden loss of consciousness and loss of power, followed by anæsthesia, and the presence of persistent hiccough, made one suspect central hemorrhage. The careful study of the case showed absence of knee-jerk. There was Argyle-Robertson pupil and incoördination of muscular movements.

Case II.—J. K., aged fifty-two, English; family history good. The patient enjoyed fair health in England, and never lost a day's work on account of sickness. During the past ten or twelve years he has noticed blood in his stools; at first at intervals of several months, afterwards more frequently, until now, when it is present once or twice a week.

In 1884, while on his way to this country, on shipboard, he began to feel weak in his knees; he never fell but frequently stumbled.

He went to Massachusetts, where for about four months he worked in dyes containing arsenic. His legs grew worse; he had attacks of vertigo, dimness of vision, great pain and vomiting. His physicians advised him to give up this work as he was probably suffering from arsenical poisoning. In two weeks he was better, but the vertigo and the trouble with his legs remained. After he stopped this work he made a living by peddling. His legs remained the same, and he had attacks of vertigo varying from once or twice a week to twice daily.

On the evening of February 25, 1890, while walking along the street, he had an attack of vertigo, and fell, losing consciousness for the first time. In about half an hour he managed to get up and go home, but with the greatest difficulty. The next morning he was unable to walk or stand and was brought to the hospital. Shortly after admission he was seized with an attack of hiccough, which resisted all treatment for several days, finally yielding to the internal administration of ether.

February 28, 1890. His heart and lungs normal. Urine contained a small quantity of pus and a trace of albumen.

Upon examination there was found to be complete anæsthesia of the right side of the body, sharply defined at the median line. Patellar reflexes absent. He cannot stand unaided, and upon attempting to do so displays great ataxia of the lower limbs. There is no apparent loss of power in either arms or legs.

Examination of the eyes showed nothing abnormal in the eye grounds. Field of vision unaltered. The pupils reacted to accommodation but not to light.

A few days after admission to the hospital it was found that there was loss of sensation on the left side. Pin pricks could not be felt, although he could fairly well localize touch. This has varied in degree since, but has never been entirely regained.

April 12, 1890, he was able to walk with the aid of a chair, otherwise there has been no change in his condition.

In the following case there was probably at the time of the accident, hemorrhage into the cauda equina. The patient fell a distance of some twenty feet and struck his buttock. There could have been no fracture of the spine as the loss of power of motion was only temporary; the general loss of sensation gradually disappeared. The case is like those reported by Dr. C. K. Mills, and it illustrates the point made by him as to the prognosis in cases of hemorrhage into the cauda equina. Dr. Mills expressed his opinion in these cases: "the patient is likely to gradually improve and finally to get so far well as to be able to move about." In this patient there was, at first, general loss of sensation, though when examined nine months after the accident, the anæsthesia was found to be limited to the distribution of the small sciatic and pudic nerves.

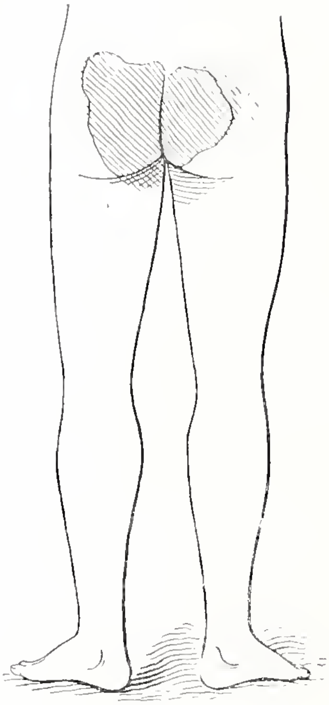
Case III.—J. F., aged twenty-six, English, laborer; family history negative. He had enjoyed good health up to the commencement of the present illness. He used liquor moderately and had no syphilitic history.

On August 24, 1889, while walking home by the side of the railroad, he fell from the embankment a distance of twenty feet. Consciousness was lost for a brief space of time. The patient is uncertain what part of his body he fell on, but thinks on the buttock. When he regained consciousness he found himself entirely paralyzed in the lower extremities. He experienced a general soreness, but no severe pain, nor has pain been a prominent symptom at any time.

For two months following the injury there was retention of the urine, followed by incontinence, which still exists. Power was lost entirely over the sphincters; all sensation was apparently lost in the lower extremities, hot bricks, which were applied, not being felt by the patient. No girdle sensation. Power was preserved in the hands and arms.

The patient was admitted to the hospital September 3, 1889, and his condition at that time was as follows: There was some power of motion in the lower extremities, but the toes could not be moved; there was thought to be greater loss on the right than on the left side. Sensation was impaired in the lower extremities, especially in the feet. Knee-jerk could not be elicited on either side.

There was retention of the urine relieved by the use of the catheter ; the bowels were constipated, but when laxatives were used there was incontinence. From that time his improvement has been gradual to July, 1890.



Area of Anæsthesia.

His present condition is that of a well-nourished man with no marked wasting of the extremities. Power in the arms is well preserved. Dynamometer R. –98 ; L –100 . No girdle sensation.

There is a slight prominence in the lower dorsal portion of the spine. The pupils are equal, dilated, and respond to light, but apparently not to distance.

The patient cannot stand upon his feet without assistance, but with the aid of a chair can get around slowly. Power has returned to muscles of the thigh and leg, which can be moved freely, but he is still unable to move his feet or toes. The right leg seems to have regained more power than the left. Knee-jerk on either side entirely lost. Plantar reflex preserved. Sensation exists in the thighs and legs. In the right foot, however, there is a great deal of uncertainty, the points of the æsthometer being felt at one point and not at another. There is a sharply defined area of anæsthesia in the glutial region, extending over a space five and a quarter inches in length by three inches in width on the left side, and four by two inches on the right side (see diagram). There is also loss of sensation in the skin of the penis and in parts of the scrotum. Power over the sphincters has slowly been retained.

Incontinence of urine, but not so marked in extent, still remains. The examination of the heart reveals the sounds free from murmurs, but at the aortic cartilage the second sound is plainly accentuated. The general condition of the patient is good. Improvement is still going on but slowly.

A CASE OF TRAUMATIC HÆMATOMYELIA OF THE LOWER CERVICAL REGION OF THE CORD.

By C. S. BRADFUTE, M.D.

The writer reports the following case as interesting from a diagnostic point of view, and as showing an unusual symptom resulting from the implication of the cervical portion of the spinal cord.

J. G., aged 48, white, ironmoulder. Admitted to the hospital February 2, 1890. Has always been healthy, save slight attacks of muscular rheumatism. No syphilitic taint admitted, but addicted to moderate indulgence in alcoholic beverages. Two weeks before admission, while under the influence of liquor, fell down a flight of stairs and struck the upper part of the dorsal spine against the angle of a table standing at the foot. Consciousness was not lost, but the fall was quickly followed by pain between the shoulders and shooting down the arms, numbness and tingling in both arms and the fingers, and later, by partial loss of power in all the extremities. Has been confined to bed since with pain in back and arms, disordered digestion, and general feeling of malaise.

Condition upon admission: Is an average-sized man, of good muscular development. Heart, lungs, kidneys and liver free from any apparent organic disease. At level of second dorsal vertebra exists a bruised spot about two and one-half inches square, tender on pressure, but no fracture discovered. Slight impairment of sensation around the trunk at level of fifth and sixth cervical vertebræ. Diminished reflexes and slightly impaired sensation in left foot, leg and knee, with loss of power to raise the limb when extended from the bed, but able to flex it upon the abdomen by great effort. Decided loss of power and absent reflexes in both upper extremities, with slight tremor on attempting to use the hands. Loss of sensation to tactile impressions on anterior and inner surfaces of arm, forearm, thumb, and index fingers of both upper extremities, with peculiar sensations shooting up the arms as though the "funny bones" had been struck. Very little pain in the back, but sharp, shooting, paroxysmal pains in both shoulders and down the arms. Tongue coated and tremulous. Patient looks anxious, with flushed, moist face, and complains of feeling very "nervous." Does not sleep at night on account of pain. Bowels obstinately constipated, but no indications of paralysis. Appetite poor. Temperature, 98° F.; pulse, 97; respiration, 16. Is able to get out of bed and walk with assistance. No visual disturbance, but both pupils dilated and react slowly to light. From what could be gathered from the patient's statements, which were not at all times reliable, it seemed that he had much improved since the injury, notably in the return of power in the right leg, about which there was, apparently, nothing abnormal when he was admitted to the hospital. Nothing could be learned of the state of sensation in this extremity after the injury, nor indeed of anything else bearing upon the cord lesion, further than what has been mentioned.

The diagnosis lay between meningitis, myelitis, hemorrhage into the membranes, concussion, and that adopted by the writer. Myelitis was the diagnosis made when the patient was first seen, but was changed after a more complete analysis of the symptoms. As against it, it may be stated that, there were no burning pains, formication, spasmodic twitching of muscles, cramps, paralysis, "girdle pain," implication of sphincters, nor trophic disturbances. In excluding meningitis, it was noted that there was very little fever, if any; no rigidty of spine, no hyperæsthesia, spasm, retention of urine, nor "meningeal streak," though the latter sign might have been absent so late in the case. Concussion and hemorrhage into the membranes could only be regarded as possibilities, and the complete mass of symptoms in nowise pointed to them.

In arriving at this diagnosis, the writer considered the following points: The character and location of the loss and impairment of sensation, which gradually but entirely returned; the location of diminished and lost reflexes, which also returned to normal; the pain and peculiar nervous sensation in upper extremities that gradually disappeared; the unusual action of the heart; the eye symptom; the flushed, moist face, that some authorities have noted as frequently occurring in lesions of the lower cervical region; the almost total absence of fever; the return of power to the right leg soon after the injury; the gradual improvement in all the symptoms (except the heart condition), which became manifest after the patient had been under treatment for a few days only, indicating that the mild, morbid complexus could only be due to a small area of pressure, which was slowly but surely being removed.

The small amount of paresis would have become at once, or at least very quickly, paralysis, had there been laceration and inflammation of the cord, and anæsthesia, more or less complete, would have been found below the seat of injury.

Notwithstanding the external evidence of where the patient came in contact with the table was over the upper end of the dorsal spine, as far as could be ascertained the paretic muscles were only those supplied by the fifth, sixth and seventh cervical nerves, viz.: The flexors and extensors of the wrist, muscles of the thumb, the subscapular, pronators, teres major, triceps, serratus, deltoid, pectoral and scapular muscles, and the area of impaired sensation around the trunk was between the fifth and eighth nerves; hence, the wrench or strain upon the cord producing the hemorrhage must have occurred somewhere between these points. The condition of the pupils showing paralysis, or rather well-marked paresis of the radiating fibres, undoubtedly due to interference with the cilio-spinal centre, would also locate the lesion above the first dorsal nerve.

The remarkable behavior of the heart presented the most interesting symptom in connection with the case, this organ persisting in a rapid action of from 90 to 130 beats in the minute, for over two months, while there was no corresponding interference with the temperature or respiration. This is contrary to the usual cardiac condition reported in such injuries to the cord, Gowers stating that the number of beats are generally lessened, and may even be as low as 20 per minute. In the present instance the writer considers the symptom due to stimulation of the sympathetic, and that the fibres of the cord, wherever they may be, communicating with the pneumogastric centre could not have been implicated, or else there would have been the slow action usually observed. The explanation is submitted with diffidence, with a full realization of its theoretical status, but the reflex disturbance of the heart can, apparently, be accounted for in no other way.

Four months after admission the patient left the hospital without leave and did not return. He was then in excellent health, and the heart-beats had dropped to 76 in the minute. There still remained a slight weakness of the upper extremities, but this did not interfere with a considerable amount of work he was in the habit of doing about the ward for several weeks before his departure.

The treatment consisted in an absolute "rest-cure," as far as it could be carried out with a somewhat refractory patient, and its enforcement was due to the assiduous attention of the resident physician, Dr. Vanneman. The bowels were easily handled by laxatives, and the appetite regulated by diet. The various cardiac agents in medicinal doses had no effect upon the heart's action. Digitalis was not pushed to its physiological effect, as it disagreed with the stomach. Electricity was not employed.

A NOTE ON HYPNOTISM IN THE INSANE.

By JAMES HENDRIE LLOYD, A.M., M.D.

The following case came under my observation at the time Kraft-Ebing's monograph was published. This work of the eminent German alienist served to rehabilitate "hypnotism," and to give it a better standing than it had had formerly in the scientific world. While this was deservedly so, it was, nevertheless, true that in his study of his interesting "subject," his methods were not always above criticism or his conclusions above doubt.

While attempting to resolve these doubts this case forced itself upon my attention in the insane department of the Philadelphia Hospital. I was not looking for any cases at the time, and had no intention of making any hypnotic experiments, but when the case was called to my notice by one of the patient's spontaneous cataleptoid spells, the opportunity seemed too good to be passed. The trials which I made of this patient were not numerous, therefore the study is not very complete. This was not because of lack of opportunity, but rather because I have little relish for the antics which commonly pass as the phenomena of so-called hypnotic "suggestion." I have no doubt the boy would have done almost anything I might have "suggested" to him, because he was a simple-minded fool and knew no better. This would soon, I am convinced, have spoiled the genuineness of the interesting cataleptoid symptoms he displayed, and have caused the proceedings to degenerate into a senseless spectacle.

J. G., æt. 16, a stolid, apathetic colored boy. He was honest and conscientious, often making unnecessary efforts to perform his duties and to please; nothing more is known of his mental traits in health. He became melancholy, his disease varying with bright, cheerful intermissions, as is so often seen in forms of pubescent insanity. He made self-accusations. There appear to have been some religious "crises," as, for instance, he was found one day leaning out of a third-story window in a rapt state, exclaiming when disturbed that he wanted to "get up higher."

A spurious attempt at suicide was made with a pistol. When the pistol was taken from him he went into a sort of *cataleptoid* state, standing motionless for two hours, giving no heed when approached.

After admission he was dull, insomnious and uncleanly; he took little notice and did not respond to questions. The prevailing tone was mental depression. He was not at all hysterical. He began to mend gradually. One morning while seated on a bench he had a "spell," as follows: He threw his head back, the eyeballs rolling upwards and inwards, and assumed an expression of extreme anguish, while tears rolled down his cheeks. He uttered no sound, would not respond to questions at the time, nor would he afterwards give an explanation of his feelings. This seizure was witnessed by an attendant only, therefore the description is not very full. A few hours later I made the first attempt to "hypnotise" the patient. He was taken into a small room, no one being present but a resident physician and a nurse. Nothing had been said of our intentions; so there had been no "suggestions" thus far.

The boy was seated on a stool and told to fix his eyes steadily upon a silver coin held against the wall a short distance in front of him. It was noticeable, as he sat thus, that he had unintelligent features, with drooping eyelids and partially open mouth. He was not, properly speaking, however, an imbecile. Perfect silence was observed. He sat so long gazing at the coin that it seemed the *seance* would inevitably end in nothing. After a long time, however, he began winking rapidly, then his eyes opened widely, the balls rolled upward and inward, and he began moaning and sobbing. He now had to be supported on the stool, as he tended to fall backwards because of the stiffening of his back and trunk muscles. There followed a slight tremor or clonic convulsive state of the muscular system.

By this time he appeared to be unconscious, and his condition suggested the approach of an epileptoid seizure (which he has never had), and as seen for the first time was such as to cause some concern in the observer. His respiration became hurried and slightly oppressed. To test the cataleptoid state his arm was elevated passively into a tiresome position; it continued thus. There was wax-like rigidity of the limbs, which yielded slowly and persisted as left. As the condition changed after a few moments, and the patient seemed about to revive, a few suggestions were made to him. First it was said that the "treatment" was for his especial benefit, and he would undoubtedly be better for it after he "came to." Then I told him that I had put some food in his mouth; he immediately began to chew. Also, that if he sang it would be better for him; he at once broke out into a particularly unpleasant camp-meeting hymn. By this time he was relaxed, the interesting cataleptoid phenomena had disappeared, his eyes were closed, and he was evidently getting into a state of mind to receive "suggestions," even to expect them. I therefore made no more. He was aroused by thumping him on the back and commanding him to stand up.

A few days later the experiment was repeated for a definite purpose. My object was to try the "stigmatization" experiment, which Kraft-Ebing claims in his book was at least partially successful on his patient. As is well known, hysterical religious subjects have sometimes exhibited "stigmata" (marks of the cross, etc.) on their persons, which marks have been claimed to be of miraculous origin. For some time science attempted to explain such stigmata by mental impression upon the vaso-motor system. A later and more exact criticism has relegated all such "phenomena" to the limbo of hysterical frauds and impositions. I personally do not believe that stigmatization by any form of mental impression is possible; and all the recorded cases I have seen are fully open to the criticism of fraud on the part of the patient, and imperfect espionage on the part of the observers. Kraft-Ebing's case is no exception. I was much surprised to see the claim made in his book, but I was not convinced.

My patient seemed a proper case for such an experiment. He was simple-minded, ignorant, and evidently impressed that something quite out of the ordinary way was being done for him. He passed again into the cataleptoid stage, displaying exactly the same phenomena in the same order as before. When he was fully in the stage of cataleptoid rigidity and appeared only partly conscious, he was told that his arm was to be operated on; that this operation was to cure him and restore him to liberty; that it would be done with the hot iron upon the bare skin; and, finally, that it would leave an open sore for several days. He made no objection, offered no resistance, but continued with half-closed eyes, entirely passive. The arm was hastily bared, an attendant directed to bring in a tray containing surgical dressings, the iron ordered to be made very hot, and then a *cold*, smooth steel instrument was pressed upon the flesh of the upper arm. The "suggestion" was not successful in one particular point, namely: the patient did not evince any emotion of pain during the "burning," although those present affected to smell the burning flesh. An antiseptic surgical dressing was then carefully applied, the whole being securely fastened by adhesive plasters, so that any interference with it could be detected.

The next day with like ceremony the dressing was carefully removed, suggestions being made to the patient of an expected "burn" or "mark" being found. No mark was found, however, which was as I expected. It may be said in passing that this patient was not hysterical, and, as far as I observed, had no element of fraud or simulation about him. This accounts, to my mind, for the failure of the experiment. It would have been interesting to find a "stigma" upon him. This would, however, have been no evidence of a vaso-motor impression, but of a mere deception as a result of "suggestion." In other words, it would inevitably have been made by the boy himself.

This patient was afterwards hypnotised by others about the hospital. The "spell" was always the same. It is to be noted that these hypnotic seizures were not truly the result of suggestion; they were simply the reproduction of a spontaneous cataleptoid state, which had been part of the patient's symptom-group even before his admission to the hospital. They were probably caused by what is now termed "auto-suggestion," *i. e.*, mental processes or trains of associated ideas connected with the boy's original psychosis, and not suggested to him by outside influences. They had, however, become a sort of mental habit, into which he easily fell. The impressive silence; the atmosphere of expectation; the prolonged gazing at a coin for some, to him, mysterious purpose; the grave manner of physicians and attendants; all served to throw his mind out of balance and precipitate him into this peculiar paroxysm, which had become habitual—his method, perhaps, of expression for some disturbed emotional process. This is probably the key to all cataleptic states—they have an emotional substratum. It is recorded on the hospital case-books that the patient improved very much after these *seances*. I believe this improvement can be ascribed, in part, to the mental impression made upon him—in other words, to "suggestion."

Thus far the case was of scientific interest. I was content to go no further, because I believed that persistent attempts at "suggestion" would be simply so many lessons to him to play a part; would rob him of his simple-mindedness and cause him to degenerate into a spectacular fool. I afterwards learned that some attempts were made subsequently by others to operate by "post-hypnotic suggestion." The patient after coming out of his spell did as had been suggested, but when asked why he did so, answered very truly, "because the doctor told me to." I have learned from a returned traveler that a patient of the Nancy School gave identically this answer when asked a similar question. The whole squad in the hospital ward were drilled.

It is well known that the insane are not easily hypnotised. I tried several other patients, all young women in the insane wards of the Piladelphhia Hospital. They were recent cases of delusional insanity. I found it impossible to obtain any result whatever. One patient especially was very tractable and gazed persistently at the coin held before her. She soon began talking to herself, evidently in reference to her delusions. It was quite impossible to obtain any response from her to "suggestions."

The reasons for this difficulty of obtaining so-called hypnotic reactions in the insane are quite apparent to my mind. The strange medley of hysteria, simulation, acting and credulity which passes nowadays for "hypnotism," has no place in the wards of a hospital for the insane. The insane mind is not usually hysterical, histrionic and credulous. Rather, it is all too terribly and sadly in earnest; it is also too self-concentrated; it does not yield readily to mere display. It requires other than an insane mind to pose for a definite purpose, to enter into a set drama, as it were, at another's suggestion. Such display requires a mind able to take more than one part—able to act, in fact. This is seldom possible in the insane mind, with its self-concentration and its marked limitation of object-consciousness. The fact that the insane cannot ordinarily be subjected to this process is one of the strongest proofs to my mind that hypnotism, as usually described, has a large amount of self-conscious duplicity in it—is, in fact, a mere dramatization.

What then shall be said to this latest cult which discourses to us of "loss of consciousness," "loss of will-power," and "dual states of consciousness" caused by a wave of the conjurer's hand? This pseudo-science asks us to believe things more incredible than the miraculous. The latter, at least, can be explained by the interposition of a superior power, but many so-called hypnotic phenomena (as the card-board mirror, stigmatization, etc.) cannot be explained either by any recognizable laws or by any special providence. It is notable, however, that the claim of a special providence is made by some fanatics to explain certain hysterical and hypnotoid phenomena, as, for instance, by the faith-cure fakirs. To these and kindred psycho-therapeutists should the practice of "hypnotism" be resigned.

RECORDS OF SEVERAL CASES OF GENERAL PARALYSIS OF THE INSANE.

By ALLEN J. SMITH, M.D.

The following abstracts from the case-book of the Insane Department may be of interest, particularly in the light of etiology, as far as the second and third cases are concerned. During the writer's occupancy of the position of resident physician to the males in the Insane Department, during the first nine months of 1887, there were sixty-eight admissions to the department. Of these there were eleven cases of paresis of the insane recognized—a proportion of over 16 per cent. It is probable that these figures are quite too high, and it is altogether likely that their occurrence was in part due to the circumstances of admission to the insane department following the closing of most of the wards after the fatal fire of 1885.

That paresis of the insane is a disease especially prone in the class of population from which the city hospital draws its wards is by no means unlikely, the exposures, the anxieties of securing a livelihood, and the dangers of various temptations all being exceptionally operative among these people. It seems true, too, that the disease is especially well-marked in the same class, the symptoms, as a rule, being clearly cut and defined in these cases.

Case I.—*Typical case of general paresis of the insane.*—J. L. W., æt. 65, male, tin-worker by occupation, was admitted to the institution February 8, 1887. He had been in the German Hospital several weeks before for the treatment of a fractured humerus, due to a railway accident. While there he tried to fire the hospital and was removed to the Philadelphia general hospital at Blockley, and thence sent to the insane department when the fragment had united.

There had been no known insanity in his family, nor was there a history of any family eccentricities or peculiarities. There were no known hereditary diseases. He himself was an only child and had been uniformly healthy and without venereal taint. His children, five in number, were all healthy and intelligent. There was clear evidence of the long existence of this disease, unnoticed at the time, but recalled by his friends, since his sanity was questioned. For the past six or seven years he had been living apart from his family, occupied in various ways with varying success. Before this estrangement he was a strict church man, penurious to a fault, energetic in business. Since then he had been almost uniformly guilty of one or other excess, alcoholic or venereal. During this period, too, he had learned to use tobacco inordinately.

Within the past six years he had become entirely changed in his business tact and carefulness. He took a fancy for fast horses, but his purchases invariably were attended with miserable failures. He had been incarcerated for wandering away with hired teams and giving them to the first person who cared to accept his gift. An effort to establish an immense bird cage depot in a small town in New Jersey resulted in marked pecuniary loss. Within the past several years he had shown a tendency to uxoriousness by proposing to any woman he might fancy, and lately he proposed to all he saw. Such incidents, scattered over this period at various times, excited not more than a suspicion of his real condition, happening at intervals in a busy career, and aroused only a feeling of indignation among his friends at his evidently growing love of crime. Six weeks before his admission into this asylum he met with an accident on the railway by which his right humerus was fractured, and within a few days later he manifested unmistakable evidences of his mental disease.

In a case such as this it would be unfair to regard the various excesses, alcoholic, venereal, etc., as the causes of his loss of mind. Doubtless the symptoms of a disease already caused, they served to hasten the course of the case and were themselves heightened by the progress of changes they were urging along.

On admission his physical condition was as follows : A small, well built man, light complexion, gray side-beard, bald head, with but a slight monk's fringe of fine gray hair about it, gray eyes, well formed ears. His pupils were small but equal, and of the Argyle-Robertson variety. Pulmonary system in good condition. Aortic diseases, with some arterial tension, indicating a capillary fibrosis. Urine clear, 1021 sp. gr., and containing a trace of albumin. Enormous appetite ; bowels evacuated with but little control. Urine passed freely and also uncontrolled ; patellar reflex increased ; no ankle clonus. Head well shaped.

There were several enormous bed sores on his buttocks, which healed readily under the influence of copaiba and castor oil dressing. The broken humerus was firmly united on admission, and about the seat of fracture was a large amount of callus. Speech was good except for the class of words and phrases used as tests ; utterance explosive ; tongue tremulous. Motive power normal, except that his feet were widely spread in walking. Gestures numerous and thoroughly appropriate.

As previously said, up to the time of the accident (six weeks before admission), he was able to attend to his usual duties in life. When asked why he had fired the German Hospital, he nonchalantly replied that he was simply anxious to see how it would look when in a blaze. On admission he was continually tearing his clothes and dressing himself fantastically in the fragments. He would tear his shirt in shreds and wind them about his hands, in order to "make gloves," as he said, and was constantly removing the dressings from his injured arm and from his sores, in order to apply them in a more satisfactory manner. He had most marked delusions of grandeur and wealth, passing much of his time in making out checks for fabulous sums for various charitable purposes He would found hospitals for orphaned puppies and kittens; was particularly anxious to endow all the maternity hospitals he could think of. He would indict letters of proposals of marriage to all the crowned women he had ever heard of, and was constantly interested in some marriage engagement, in which he invariably figured as one of the contracting parties.

From penuriousness his whole energy was concentrated in proving himself a spendthrift. He would give away anything and everything, even his multitude of wives. He was a millionaire, a friend of Cleveland's, a husband of Queen Victoria, a king, a god, around whose head the Almighty Himself had placed a halo. Always cheerful, the most squalid surroundings were to him magnificent, the most abject poverty enormous wealth. There were no hypnagogic hallucinations or morbid dreams, but his sleep was always short and broken; and he was constantly the earliest out of bed and ready to go to his important duties of the day. He would wake up in the night and call for some magnificent banquet, but a piece of bread was an acceptable substitute. When kept to a line of thought by constant questions his conversation was intelligent, but allowed to go at will he invariably babbled. Added to his other faults was a marked kleptomania. His memory was not markedly impaired, except for very recent events. Imagination grossly exalted. Power of volition lost, except as shown in obstinacy when crossed in one of his desires. There were no hallucinations apparent, except possibly of hearing. He was very emotional, weeping upon a suggestion and within a few moments smiling with gladness. His sensibility seemed to be very little, if at all, affected.

In March he developed a hæmatoma of left ear, which, in course of three weeks, had entirely disappeared. The following month he developed a similar tumor on the right ear, which has since also disappeared. During his stay in this asylum he had none of the characteristic fits of general paresis, nor any history of any previous ones, in which particular the case is separated from the type. Late in the case there were attacks of *petit mal*, which probably replaced the ordinary seizures, and his death resulted suddenly from a collapse, which possibly was of the same nature. His general health gradually failed, and he lost flesh in spite of his voracious appetite. His walk became unsteady, and a tremor developed about the lips. Mentally his condition continued unchanged for about five months, after which time dementia rapidly followed. His death resulted very suddenly, as above indicated.

The following notes are taken from the post-mortem records:—

Skull cap very thin, especially anteriorly. Dura mater normal. There was a large amount of subarachnoid fluid. There were marked adhesions between the hemispheres in the longitudinal fissure and between the various convolutions, without, however, special opacity and thickening of the pia mater. Over the right hemisphere, along the upper margin of the Sylvian fissure, was an irregular patch of ecchymosis in the pia mater. In the lateral ventricles was a large quantity of effusion. No gross lesions in any part of the brain. The gyri were generally flattened, however, and on section the gray matter of the cortex was especially thinned.

In this case the absence of the common epileptiform (almost apoplectiform) seizures is found to be associated with an absence of the usual appearances of meningeal changes, in the shape of chronic pachymeningitis of hemorrhagic or non-hemorrhagic type, or of chronic leptomeningitis leading to thickening and opacities of the pia mater. In this case, too, as in many, the epileptiform paroxysms seem to be replaced by symptoms of collapse of more or less passing nature, associated with conditions of marked cardiac nature; and it might, with some propriety, be suggested that the paroxysms above referred to were in reality due to extreme cardiac spasm, producing on the venous side sufficient stasis and engorgement to account for the meningeal appearances, especially after chronicity of the disease and a number of individual seizures had been experienced.

CASE II.—*General paralysis of the insane, probably arising from chronic plumbism.*—W. S., white, married, printer, æt. 35 years, was admitted to the insane department of Blockley in May, 1887. So far as could be ascertained there was no hereditary taint of any form. About three years prior to his admission he began to work in a paint factory at grinding colors, and after eight months was one morning attacked by an epileptiform convulsion, following which was noted a slight left sided palsy, soon recovered from, however. He continued at the work, however, for some months longer, until compelled to give it up because of double wrist-drop. This persisted four or five months, after which he endeavored to gain employment again, but the epileptiform seizures becoming more frequent prevented his retaining any position for any length of time.

About a year before his admission he began to be regarded queer, and his fellow workmen were considerably annoyed by his actions. About this time one of his employees sent him to deliver a bill at a certain house where he had been successfully dispatched the day previous; this time he returned to report that no such family lived in that house or neighborhood. Thus in more than one way he came to be considered unreliable. When at work he could not bear to be instructed how he should perform any part or to be ordered about in any way; he was surly and harsh to his fellows. He had never been a bright man intellectually, but had formerly been extremely kind and lovable, with a jolly disposition and industrious habits. Despite his natural cheerfulness, however, he was easily worried and despondod over trifling reverses. Was temperate in the use of alcoholics, but used tobacco excessively. He was described as a man of excellent general health before working in lead. His manner of speech was quick and clear in utterance, and his movements rapid for a man of heavy build. There were no evidences of specific taint.

Examination at time of admission showed a man of short, heavy stature, dark complexion, with muddy, leather-like skin, black hair, plentifully streaked with white, and with a gray moustache. Hair very coarse. Eyes dark-gray in color, with pupils equal, of Argyle-Robertson variety; was in fair condition of nutrition, but weak. Pulse normal in frequency, full and hard, with considerable tension.

There was a soft blowing double mitral murmur to be heard, otherwise the circulatory system presented no changes. Respiratory system normal. Tongue coated and fissured. Teeth good, no line on gums. Appetite ravenous, and stools, which were occasionally passed involuntarily, normal. Genitals normal. Urine contained small quantities of albumin. Head well shaped and large; countenance blank and heavy. Speech thick, tremulous and scanning in type. There was inability to pronounce the usual tests. Marked tremor of lips and tongue. Gestures few, appropriate, made with a tremulous, jerky motion. Movements more or less incoordinated. In walking there was noticeable lack of power in the left side, making the gait a sort of sidelong shuffle. He complained of pain in the back of his thighs, dull and aching. The grip of the left hand much weaker than of the right. General sensibility slowed, but no apparent areas of perverted sensation, hyperæsthesia or anæsthesia. Patellar reflexes much increased. Ankle clonus and muscle jerk at the knee were easily elicited.

As the disease progressed from the origin as above, he grew weaker and more irritable and forgetful; would wander away and become lost. He had hallucination of hearing, especially in the early part of the night. There was no clear history and no evidence presented while in the asylum of the presence of delusions of expansive nature. Before admission to the insane department, while in the nervous wards of Blockley, there was on several occasions nocturnal delirium, and he became maniacal. It is said that at this time he had several delusions, imagining the patient in the adjacent bed a female and desiring co-habitation. He used to deck himself gaudily, sewing brass and gilded official buttons on his clothes to satisfy a whim of vanity. Was more or less restless, but quiet and non-destructive. In the insane department he recognized his surroundings, but did not demur in the least. His mental condition was not one of perversion, but rather a gradually increasing dementia, without the usual symptoms of mania or melancholia preceding. The seizures, which attacked him more or less frequently, were preceded invariably by an aura, but not by the usual epileptic cry. There was no frothing at the mouth, nor any of the spasmodic movements of epilepsy. There was always venous stasis and each fit was followed by a transient left-sided palsy.

He continued in the same manner, growing gradually weaker, losing power over all his sphincters, voluntary motion becoming progressively more incoordinated until in April of the following year, when he died in one of the epileptiform paroxysms.

On post-mortem examination the following notes were made as to the cranial and cerebral conditions:—

Skull-cap of about the usual thickness. No adhesions between its under surface and the dura. This membrane was markedly thickened, with strong adhesions from its under surface to the membrane beneath. The entire convexity of the brain was of a leaden hue from opacity of the pia mater, which was thickened, especially on either side of the longitudinal fissure, where it was adherent throughout its length from surface to corpus callosum. Upon the under surface of the brain similar opacity and thickening of the pia. About a pint of clear subarachnoidal fluid was obtained on entering the cranial cavity, and both lateral ventricles were found immensely distended with the same. The entire frontal lobes were much flattened, the brain substance having shrunken fully an inch away from the dura. No gross lesions in the ventricles beyond some venous distension; no lesions found in the basal ganglia or the interior of the brain, the medulla, pons or cerebellum. The brain tissue was soft and the cortical matter distictly narrowed.

Case III.—*General paralysis of the insane, probably of syphilitic origin.*—S. H. G., colored, male, aged thirty-seven years, married, a laborer, was admitted to the insane department, at Blockley, from the county prison of Philadelphia. Nothing could be ascertained as to his family history. A year prior to his admission to Blockley, he had been under observation at the county prison and was then mildly deranged. He was a tall negro, of light brown color, with thick, black and coarsely curling hair, with black eyes and closely contracted pupils that responded only slowly to light. Ears normal, hearing apparently unchanged. Head of normal size and good shape; features were intelligent, bright and well cut. The skin of the face was thick and slightly bound; and here and there over the face, back, and the rest of his body there were syphilitic rupial sores and scars of former sores. Pulmonary examination was negative. The arteries at the wrist were tense and atheromatous; and there was diagnosed a condition of mitral insufficiency. Digestive symptoms were absent at the time of admission. His urine indicated considerable disease of the kidneys. The penis was badly eroded at the glands from the specific sores, the upper part of the gland being entirely eaten away. Near the base of the penis were several large elevated ulcers with hard raised edges.

The speech was thick, and delivery explosive upon beginning to speak, but the usual delivery had a sing-song tone. There was some tremulousness in the delivery, and a tremor was perceptible of the lips during speech and of the tongue when protruded. Motions generally were tremulous; the gait was accomplished with the feet wide spread. The power of grasping was notably diminished in both hands. There were no abnormalities of sensibility. The patellar reflexes were heightened, especially the right; no ankle clonus. The man was in poor state of nutrition. While in prison it was stated that he had had a number of "spasms," in which he would lie apparently senseless, motionless, and without marked rigidity. After one of these he would be stupid for several days. The present attack as already stated had existed a year or more. When in prison the year previous he had made a number of very silly speeches, had been frequently somewhat disconnected in his conversation, and had been accounted a confirmed kleptomaniac.

Upon admission to the asylum, in addition to the physical evidences of paresis of the insane, the patient presented marked delusions of grandeur. In spite of his physical condition he stoutly maintained a feeling of *bien-etre.* His countenance wore a constant smile of approval and self-esteem; and he made overtures of friendship to whomsoever he met. His sleep was frequently broken and he was awake early and late, busy with numberless plans. He was very restless, could not remain seated for any length of time. Was constantly tearing his clothes in the endeavor to better his covering. His conversation was disjointed, sometimes quite incoherent. He was on account of his health and habits confined more or less to his room; but his confinement did not seem in the least an inconvenience. It, with every other trial, was not regarded in the least in the midst of his visions of wealth and splendor. There was a history of hallucinations of hearing while in prison, but no evidence of their continuance after admission to Bleckley. While in prison he made an attempt to hang himself; and in attempting to escape he attacked a warden violently. He was peaceful and quiet, however, in the asylum; clean in his habits, but destructive of small articles about him. He was very loquacious, boasting continually of his physical prowess and of his magnificent wealth, promising all his acquaintances splendid presents. His intellectual powers all were grossly at fault; his memory was poor for both recent and remote events. His emotions were poorly controlled, joy, grief and anger being often in quick succession aroused without the least apparent cause. He did not recognize his surroundings, his position or condition in life.

He continued in such condition for about two weeks, when, having been placed by his attendant thoughtlessly into a freshly scrubbed room for several hours, an acute nephritis was superadded to his previous renal complications. Uræmia set in the day following, and after varying symptoms he died in about a week more.

On post-mortem examination practically identical appearances of the brain were noted; a considerable degree of pachymeningitis, non-hemorrhagic in character. Pia mater was thickened and opaque, especially along either margin of the longitudinal fissure and along the Sylvian fissures. Considerable œdema of the membranes was noted, as well as ventricular effusion. The convolutions were markedly flattened, the sulci shallow, and on section the cortical substance shrunken. The pia in the areas along the longitudinal fissures was adherent to the cerebral substance. Microscopical examinations of portions of these areas and of other parts of the cortex suggested the specific character of the inflammatory changes, marked by thickening of the vascular walls; the sclerosis of the cortex was apparently most fully marked immediately around penetrating vessels.

ERYSIPELAS OF THE EYELIDS SPREADING EXTENSIVELY TO FACE AND SCALP. ORBITAL CELLULITIS. RECOVERY WITHOUT IMPAIRMENT OF VISION.

By G. E. de SCHWEINITZ, M.D.

Frequently the eyelids are involved in an erysipelatous attack by an invasion of the disease which has originated in the neighboring facial area; more rarely the inflammation begins in the tissues of the lids themselves. The chief interest which attaches to facial erysipelas from the ophthalmological standpoint is the blindness which has followed the attack in a number of cases, in all of which, according to Knapp,[1] orbital cellulitis was a complicating symptom.

The following case of severe facial erysipelas, beginning in the eyelids and probably associated with orbital cellulitis, and yet without any disturbance of vision or decided changes in the eye-grounds, includes several points of interest.

Charles Dolan, aged twenty-seven, an American by birth, was admitted to the wards of the Philadelphia Hospital, January 24, 1890. His father died at the age of forty-two, of phthisis; his mother from the effects of an abdominal operation; one brother is living and healthy. The patient is single, and with the exception of rheumatism contracted several years ago, has been free from any severe illness during his entire life. There was no history of injury. He acknowledged gonorrhœa, but denied syphilis. His occupation was a street car driver, and there was no other relation of his work to his illness than the necessary exposure which such an occupation entailed. He used tobacco moderately and also alcohol. There were no sexual excesses. Six weeks before admission, the patient began to complain of severe general headache, most marked in the temples, and aggravated by moving the head and eyes from side to side. One week later diplopia appeared; according to his statement the heads of the horses were doubled and stood side by side. The muscles of the left eye were apparently those affected, inasmuch as he always closed this eye in order to avoid the effects of the double vision. There was at this time no swelling of the face and no appearance of external inflammation about the eyes. He continued his occupation and succeeded in driving correctly by keeping the left eye closed. Two weeks before he sought admission, the headaches became so severe that he was unable to continue his work. and sometime during the night of Tuesday, January 23, after hours of most intense suffering, his eyelids began to close and by morning were swollen tight shut.

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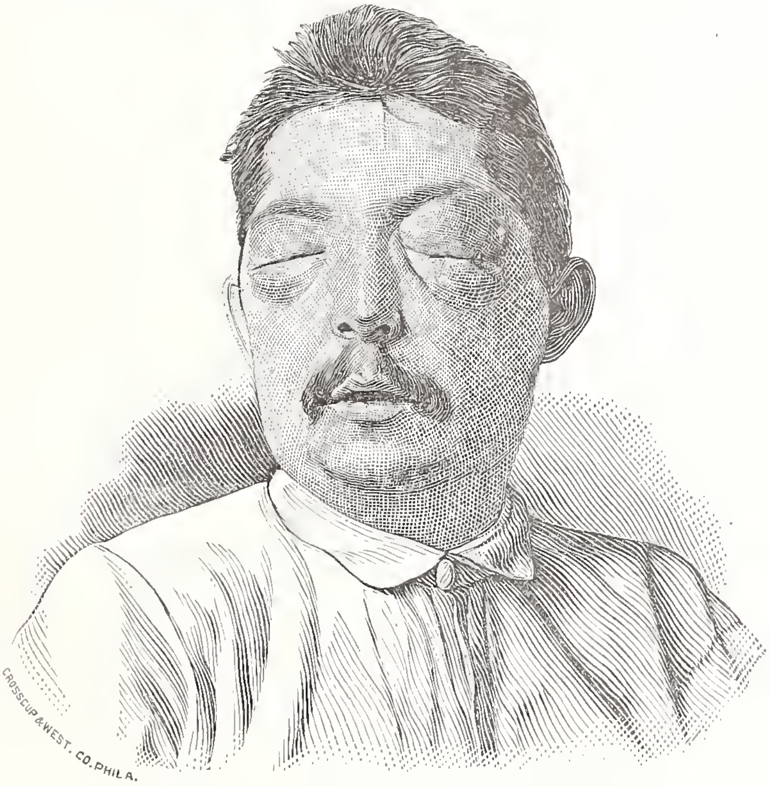
[1] Archives of Ophthalmology, Vol. XIII, 1881.

Condition on admission.—The skin of the forehead was œdematous, both eyes closed, the lids swollen, bulged forward, and of a dark-red erysipelatous color. No conjunctival discharge, but the bulbar conjunctiva chemotic. The eyes moved with difficulty and pressure produced pain, the cornea was clear, and several superficial abscesses appeared in the skin of the left eyelid, which, together with the face on that side, was more swollen, especially over the antrum and down on the neck, than similar areas upon the opposite side. The tissues over the nose and between the eyes were puffed up and boggy, giving the man a typical "frog-face" appearance. There was no fluctuation at any point over the swollen surface. There were no carious teeth and no disease of the naso-pharynx. The tongue was heavily coated, the appetite impaired, the bowels constipated. The lungs were free from râles, the respiration 20 per minute. The heart was regular in its beat, pulse 72, and no increase in arterial tension. The general intelligence was perfect, the sleep being broken only by the intense headache which had never ceased since its original onset. The pupils reacted to light. The vision, as far as it was possible to obtain this, appeared to be unaffected. The swelling of the conjunctival tissues was so great, however, that no complete ophthalmoscopic examination was possible. The urine was of a reddish-yellow color, had a specific gravity of 1018, acid in reaction, free from albumin and sugar, and contained a small sediment composed of leucocytes



and epithelial cells. No casts were present. The patient was placed upon full doses of quinine and iron, and locally frequently changed compresses soaked in a warm solution of bichloride of mercury—grain 1 to the pint—were ordered. On the 27th, the temperature, which on admission had been 101, rose to 104.

The following is the Record of Pulse, Respiration and Temperature from January 24 to February 12 :—

DATE.	TIME.	PULSE.	RESPIRATION.	TEMPERATURE.
January 24	Morning	108	30	101
	Evening	72	20	100
January 25	Morning	70	24	100.8
	Evening	72	18	100.4
January 26	Morning	72	16	100
	Evening	80	18	99.6
January 27	Morning	84	28	104
	Evening	90	22	102.8
January 28	Morning	86	26	102.4
	Evening	86	20	101.8
January 29	Morning	88	24	100.6
	Evening	86	24	100
January 30	Morning	68	16	98.6
	Evening	68	20	99.2
January 31	Morning	72	20	99.4
	Evening	66	18	98
February 1	Morning	72	20	98.6
	Evening	74	18	99.4
February 2	Morning	68	16	98.6
	Evening	82	18	99.2
February 3	Morning	72	16	100
	Evening	76	18	98
February 4	Morning	68	19	98.2
	Evening	74	18	99.2
February 5	Morning	70	20	98.6
	Evening	76	20	98.2
February 6	Morning	76	22	98.8
	Evening	84	22	99.2
February 7	Morning	70	18	98
	Evening	76	20	98.6
February 8	Morning	82	20	97.8
	Evening	84	20	98.4
February 9	Morning	70	18	99.6
	Evening	70	18	100.6
February 10	Morning	90	20	99.4
	Evening	88	18	99
February 11	Morning	90	18	98.4
	Evening	86	20	98.4
February 12	Morning	80	18	98.4
	Evening	74	20	98.4
February 13	Morning	.....	...	98.4
	Evening	.....	...	97.8

The patient was etherized and deep incisions made along the margin of the orbit of the left eye, above and below, and a similar incision in the lower lid of the right eye. The escape of pus was very free, not less than eight ounces being evacuated. This seemingly came from the infiltrated tissues all around, and in order to secure drainage, counter incisions were made in the dependent portions of the left side of the face. A director was pushed into each orbit, and from the orbit of the right side a small quantity of pus escaped. Great relief followed the incisions, which were daily syringed with the bichloride solution. Three days later the morning temperature was normal, and it never rose again above 100 until the 9th of February, when a large abscess, which formed over the left ear and was confined by the temporal fascia, was opened by my colleague, Dr. George M. Gould, who was at this time in charge of the wards. Subsequently a smaller abscess in the neighborhood of the original incision at the left eye appeared and was evacuated. The treatment during the entire period was quinine, tincture of the chloride of iron and whiskey. At the height of the attack the bogginess of the tissues, as well as the brawny flush, extended very high up in the scalp, completely over the face, and as far down the left side of the neck as the sterno-clavicular articulation. The amount of pus evacuted in the second incision fully equaled, if it did not exceed, that which was obtained at the original operation.

As soon as the swelling had sufficiently subsided to render ophthalmoscopic examination possible, this was made by Dr. Gould, who reported practically negative findings. The vision was normal. Two months later the vision of each eye was $\frac{20}{XX}$. There was no paralysis of any external eye muscle. The pupil reactions were normal. In the right eye there was an oval disc, the nasal edges veiled and the central lymph sheaths full ; the veins full, dark in color, and slightly tortuous ; no macular changes. In the left eye there was an oval disc, a small physiological cup, and a similar condition of the retinal veins. Lying upon and overlapping the outer margin of the optic disc on this side there was a small linear hemorrhage, apparently such as might be produced by the rupture of a capillary. This had a fresh appearance and was not present at the time that Dr. Gould examined the patient shortly after the subsidence of the erysipelatous swelling.

REMARKS.

The character of the patient's occupation, a car driver, readily supplies exposure to inclement weather as the exciting cause of the erysipelas. The presence of intense headache six weeks before the appearance of any flush upon the face or eyelids, and diplopia, with pain on moving the head and eyes, five weeks before the onset of visible external inflammation, seem to point to the existence of orbital cellulitis in the earliest stage of this process. It should be remembered, however, in this connection, that the patient had in times past suffered from rheumatism, and these symptoms may be explained on the supposition that the "headache" was really the pain of a rheumatic affection of the fibrous tissue of the scalp, and the diplopia the result of a rheumatic palsy of the external rectus. When the erysipelas did appear this was manifest first in the tissue of the lids, and from this point spread to the face, scalp and neck. The incisions revealed the pus chiefly in the connective tissue of these regions, but apparently also in the right orbit; at least pus escaped after the introduction of a grooved director.

Facial erysipelas associated with orbital cellulitis renders the prognosis to life and sight quite uncertain, as is evidenced by the following summary of thirty-five cases collected by Knapp (loc. cit.):—

Death, when one eye only was affected, in	4	cases.
Death, when both eyes were affected, in	6	"
Recovery in	25	"
Of these one eye only affected and permanently blind in	12	cases.
Both eyes affected and permanently blind in	4	"
Both eyes affected; sight restored in one, in the other lost in	3	"
Both eyes temporarily blind; restoration of sight incomplete in both, in	3	"
One eye affected, amblyopic but not blind; restoration of sight complete in	1	"
Both eyes affected, amblyopic; restoration of sight complete in	2	"

From this table it is manifest that the mortality is twenty-nine per cent. in cases of orbital cellulitis from erysipelas. The condition of the eye-sight in the surviving cases, according to the same author, was as follows:—

Blindness in both eyes occurred in	16	per cent.
Blindness in one eye occurred in	60	"
Incomplete recovery of sight occurred in	12	"
Complete recovery of sight occurred in	12	"

If it is assumed that orbital cellulitis was present in this case, it is not a little remarkable there was no impairment of vision and no change in the eye-grounds. It is probable that this escape was due to the fact that at no time was there sufficient compression of the central vessels of the retina in the orbit, which Knapp has shown to be the cause of the intra-ocular changes, to produce stoppage of the circulation and œdema and exudation into the retina. It is interesting to note the presence of a small linear hemorrhage several months after the affection had entirely subsided, a hemorrhage, moreover, which was apparently not present during the stage of convalescence in this patient.

Although impairment of vision and changes in the eye-ground from orbital cellulitis appear usually during the inflammatory stage of the erysipelas, they have been seen also in the period of convalescence. This small hemorrhage and the somewhat enlarged and tortuous retinal veins, are too far removed in point of time from either the onset, height or stage of convalescence of the erysipelas attack to be explained upon these grounds. There is absolutely nothing now in this patient, except a slight scar at the point of incision upon the cheek and lower lid of the left eye, to indicate that he had ever been through an attack of erysipelas that for some days threatened his life.

The points of interest in the case seem briefly to be these: A period of several weeks with symptoms pointing to cellulitis of the orbit, or else to rheumatism of the scalp and rheumatic palsy of the external rectus; erysipelas at the end of this time having its point of origin in the tissue of the eyelids rapidly spreading, and associated, as far as this was ascertainable, with a low grade of cellulitis of the orbit; entire recovery of the patient without at any time disturbance of vision, and with no changes in the interior of his eye, except a small linear hemorrhage, discovered so long after the attack that its origin can not be traced.

CENSUS OF THE PHILADELPHIA HOSPITAL FOR 1890.

CENSUS OF THE GENERAL HOSPITAL FOR THE YEAR 1890.

WARDS.	TREATED.	CURED.	RELIEVED.	NOT RELIEVED.	DISCHARGED.	DIED.	REMAINING.	REMARKS.
Men's Medical	2,906	1,366	961	579	2,203	360	343	
Men's Surgical	917	539	306	72	749	40	128	
Men's Venereal	563	371	188	4	526	2	35	
Men's Eye	104	28	51	25	56	0	48	
Men's Skin	109	83	22	4	103	0	6	
Men's Nervous	457	22	146	291	259	39	157	
Woman's Medical	925	227	319	379	651	176	98	
Woman's Surgical	251	136	95	20	213	8	30	
Woman's Venereal	184	46	135	3	128	3	53	
Woman's Eye	57	16	29	12	29	2	26	
Woman's Skin	48	37	5	6	39	0	9	
Woman's Nervous	173	4	36	132	62	26	85	
Gynæcological	117	32	45	36	89	18	10	
Nursery	453	22	22	17	364	33	56	
Children's Dep't	115	35	37	6	101	2	12	
Maternity	164	164	0	0	164	0	0	
Children in Maternity	164	154	0	0	154	10	0	7 still-born children.
Obstetrical	161	2	2	1	5	2	26	
Total	7,868	3,287	2,399	1,594	5,898	721	1,122	

GENERAL CENSUS OF THE INSANE DEPARTMENT PHILADELPHIA HOSPITAL FOR 1890.

	Male.	Female.	Total.
Patients in Department December 31, 1889	403	421	824
" admitted during year 1890	155	128	283
" treated during year 1890	538	549	1,107
Number of first admissions 1890	147	118	255
" of recent admissions 1890	8	10	18
" discharged restored, 1890	27	25	52
" " improved, 1890	22	12	34
" " unimproved, 1890	18	19	37
" " not insane, 1890	1	0	1
" died during 1890	44	59	104
Highest number in Department, 1890	464	455	919
Lowest number in Department, 1890	403	420	823
Number remaining December 31, 1890	446	434	880

EPIDEMICS IN THE PHILADELPHIA HOSPITAL FROM 1862 TO 1890.

By ROLAND G. CURTIN, M.D.

A continuation of the account of the important epidemics which have visited the Philadelphia Hospital since 1862, the date to which they were brought by Dr. Agnew in his history of the hospital, is here attempted. The following are the most important epidemics since that date arranged in chronological order.

Typhus fever, 1864–5, 1867, and 1881–2–3; cholera, 1866; cerebro-spinal meningitis, 1866–7; malignant measles, 1868, 1882, 1884, 1887; relapsing fever, 1869–70; typhoid fever, 1876; puerperal fever, 1876–7–8, 1881, and 1883; influenza, 1889–90.

The statistics of some of these epidemics are exceedingly meagre owing to the absence of some of the older record books.

Typhus Fever.—During the last year of the war of the rebellion and the following year, an epidemic of typhus fever occurred. This was attributed to infection from the soldiers who were sent to the northern military hospitals. The medical history of the war states that 2,501 cases of typhus occurred among the troops of the United States army, and of these, 850 cases proved fatal. During 1864 and 1865, numerous cases were treated in the Philadelphia Hospital, though it is impossible to state the exact number. In the women's medical ward alone, 154 were treated, of which number 27 died. Probably in all 700 or 800 cases were treated durng these years (1864–5). It was during this epidemic that Dr. J. P. Tutt, at that time visiting physician, lost his life. Having made a post-mortem on a malignant case, a few days subsequently he took the fever and died in less than a week, after great suffering.

During the summer and autumn of 1867, about the time when the epidemic of cerebro-spinal meningitis subsided, another virulent epidemic of typhus appeared, and 300 cases were treated. Many of these originated in the old cubbies in the out-wards, and in the surgical garret, among the old men having leg ulcers and other chronic affections. The fatality was great owing to the type of the disease, the age, former habits, and generally broken-down condition of the patients. Again in 1881, typhus fever appeared, having been introduced from Europe by emigrants. In the Philadelphia Hospital during the years 1881, 1882 and 1883, in the men's and women's medical wards, 69 cases were treated and 27 of these died.

Asiatic Cholera.—During the summer and fall of 1866, while I was resident in the insane department, about 150 cases of cholera were treated in the old temporary smallpox hospital, which had been used for smallpox and other infectious and contagious diseases before the municipal hospital was built. The board of guardians at their stated meeting held May 19, 1862, appointed a committee of three to erect a building for smallpox patients. It was situated below the southern end of the eastern wing of the insane department, in the field near the West Chester railroad. I well remember the old pine barracks, with its unplaned boards, with cracks of sufficient width to allow the inmates to look out from their beds to view a pile of coffins placed outside, ready to receive the next victims. Eighty-two deaths occurred in this building. The old residents of the insane department furnished a large number of the cases affected, and among them the disease was particularly fatal. This was, I believe, the fourth epidemic of this disease which visited the hospital. The other visitations were in 1832, 1849 and 1854, as will be observed in Dr. Agnew's history.

At the stated meeting of the board of guardians held March 19, 1866, as appears from the minutes, a communication was read from Dr. Tutt in regard to certain rules and regulations necessary in the event of the appearing of the cholera, which was referred to the committee on hospital and diet. At the meeting of May 28th, the hospital committee presented a communication from the medical board signed by Edward L. Duer, secretary, in which it was stated that at a special meeting of the medical board, the following preamble and resolutions were adopted :—

" *Whereas*, it is the general opinion of the medical profession that Asiatic cholera is propagated from the sick to the well, and that isolation of the affected is of the greatest importance in the arrest of disease ; therefore,

"*Resolved*, that the hospital committee be requested to procure suitable hospital tents to be immediately erected on an open field, on the very first outbreak of the disease, and that the patients be immediately removed thereto, as soon as they are seized with the affection."

In the Annual Statement of the board of guardians for the year ending December 31, 1866, is the following report by a committee of the board :—

> "Your committee beg leave to call your attention to the breaking out of the cholera at the almshouse the present year, and to the apparent effect, under the blessing of a kind Providence, produced by thorough ventilation from the floor, in its prevention and final disappearance from the institution. The disease first attacked four patients and a nurse in one of the wards of the women's hospital, which ward, upon close examination, was found to be imperfectly ventilated. This was at once remedied, after which there were no more cases in the hospital.
>
> "In the insane department for females the cholera occurred in several of the wards. These were ventilated by the old plan—from the ceiling, or by windows and doors. The ventilation in this department was not yet perfected, but on the appearance of the disease strong efforts were made to push it forward, and it is a remarkable fact, that as soon as thorough ventilation from the floor was established, the cholera disappeared from the institution. It may be proper here to remark that heat was introduced into the wards about two hours daily during the prevalence of the disease ; and it is also worthy of note that in no part of the almshouse, although crowded, was there any cholera where ventilation from the floor was thoroughly established ; and we would further state, where it has been fully perfected, no case of fever or dysentery, and a very few of erysipelas or gangrene, have originated in the hospital, or in any part of the house, and those patients brought from the city with those diseases mostly soon recovered, and the health of the inmates is at this time excellent."

Cerebro-Spinal Meningitis.—In the fall of 1866, and the early part of 1867, an extensive outbreak of epidemic cerebro-spinal meningitis occurred. About 200 cases were treated in the hospital. The cases early in the epidemic were largely fatal, but later the mortality was much diminished. Dr. Alfred Stillé,[1] then one of the visiting physicians, published a valuable monograph on this disease. Dr. W. H. H. Githens,[2] a member of the resident staff, wrote an instructive paper for the American Journal of the Medical Sciences, giving data of 98 cases. Dr. Stillé's monograph was dedicated to the clinical class of the Philadelphia Hospital for 1866–7, and in his introductory he speaks as follows :—

> "As the epidemic meningitis, which has ravaged the United States for the last ten or eleven years, appears to be approaching the termination of its career, the present seems to be a fitting occasion for reviewing its course and studying its analogies with European and other American epidemics of the same disease, and

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[1] Epidemic meningitis, or Cerebro-spinal meningitis, by Alfred Stillé, M.D. Philadelphia, Lindsay & Blakiston, 1867.

[2] American Jour. Med. Sci., July, 1867.

for guarding, if possible, future generations of physicians against misconceptions and mistakes, the confusion of ideas, and the still greater confusion of terms, which even now have not altogether ceased to have currency among professional teachers and writers. We have been the more strongly moved to attempt placing the subject in a clear light, by the practical acquaintance with it, which we acquired during the first quarter of the present year, while studying about 120 cases of the disease in the Philadelphia Hospital. Nearly 100 of them form the subject of a very valuable report contributed by Dr. Githens to the 'American Journal of the Medical Sciences.' In the corresponding term of the previous year we witnessed a still more extensive and fatal epidemic of typhus fever in the same institution, where, also, thirty years before, we had become familiar with that fever as a resident physician of the hospital during the great epidemic, the history of which is so honorably associated with the names of Gerhard and Pennock. Such opportunities were peculiarly fitted to reveal the grounds of the common error of confounding epidemic meningitis and typhus fever, into which physicians acquainted with only one of these affections have been prone to fall, as well as to illustrate the surprising variety of morbid phenomena which the former exhibits by virtue of its double character as a blood disease, and an inflammation of the cerebro-spinal membranes."

Malignant Measles.—In 1868, during the months of April, May and June, an epidemic of "black measles" occurred, of which Dr. DeForest Willard, then a resident physician, has kindly furnished me with some notes. The first cases were mild, but in a few days the extreme malignancy of the disease became so great that the patients sometimes died before treatment could be fairly instituted, and frequently within twenty-four hours after the appearance of the rash. Pulmonary complications existed in nearly all the cases. The number of deaths was about 80. In the foundling ward, 15 of the 16 inmates died within four days. In 1882, many cases of measles also occurred; in this epidemic it is stated that in the foundling ward 13 out of 14 children died. In January and February, 1884, malignant measles again invaded the children's wards. Dr. E. P. Bernardy, then a visiting obstetrician, has given me the following facts in regard to this outbreak:

Under his care were 73 cases, of which 21 died during the disease and convalescence, 2 of this number dying two weeks later of pneumonia. The cases at the commencement of the epidemic were of the malignant form; later they were of a milder type. Most of the fatal cases were complicated with pneumonia.

In 1887, from May to September, 16 cases were reported.

Relapsing Fever.—Some cases of this disease found their way into the Philadelphia Hospital in 1844, as also at its second visitation in 1848 to 1850, but in 1869 and 1870, between 200 and

300 cases were treated. Upon each visitation the disease was introduced from Europe. Drs. William Pepper and Edward Rhoads, visiting physicians, studied over 200 cases, and the results of their labors were later embodied in a paper by Dr. Pepper.[1] Dr. Rhoads contracted the fever, and so damaged a previously diseased heart, that he never recovered his strength. Dr. John S. Parry, one of the obstetricians of the hospital, also wrote an article[2] on the subject, giving his conclusions from the study of a large number of cases. Eleven hundred and seventy-six cases were reported in Philadelphia.

At the stated meeting of the board of guardians, March 28, 1870, a resolution was offered that the smallpox buildings be immediately fitted up for the use of relapsing fever patients, and this was referred to the committee on hospitals. At the same meeting the medical board was requested to investigate the alarming increase in the cases of fever prevailing in the hospital, and also if the bathing of the inmates once a week could have any possible influence on the same.

At the meeting of April 25, 1870, a committee of the medical board, consisting of Drs. A. Stillé, E. Rhoads, J. L. Ludlow and W. Pepper, reported to the hospital committee of the board of guardians, that at special meeting of the medical board a committee was appointed to examine the localities for the erection of additional buildings for the accommodation of acute infectious diseases, and make report, that having examined the premises, they recommend to the hospital committee that a building be erected immediately, and that in their opinion the most eligible site is in the space between the west wall and the hospital buildings.

At a meeting of the board of guardians held May 23, 1870, a request was made by the board of health to admit relapsing fever patients into the Philadelphia Hospital as the municipal hospital was full; accordingly at a special meeting held May 31, 1870, the request was complied with, owing to the exigencies of the case, and the old smallpox hospital building was offered for the fever patients.

The following occurs in the Annual Statement of the year 1870, in the report of John H. Parry, secretary of the medical board:

"During the year 1870, as you well know, the hospital has been taxed to its utmost by the epidemic of relapsing fever, which swept over the eastern part of the country. In March or April last the first case was admitted, and during the year 458 persons were treated for the affection.

* * * * * * * * * *

"The mortality of all the cases—thirteen and three-fourths per cent.—was high, and the excess of deaths was in the black men's medical ward. The disparity between this and the death rates in other departments is very striking, and particular attention is called to the fact that the lowest mortality was among colored women. The number of cases among the colored men was just double that among women, while the mortality, instead of being twice, was sixteen times as great."

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[1] American System Pract. Medicine, Vol. I. p. 369.

[2] American Jour. Med. Sciences, Vol. LX. Oct., 1870.

"In regard to this fact I received the following communication from Drs. Stillé and Pepper:—

"'In explanation of this apparently unaccountable excess of mortality among the black men, various circumstances may be advanced. In the first place, a very large proportion of the patients of this class were admitted in a dying state, and in more than one case death actually occurred before the patient could be placed in the bed. In very few instances, indeed, did they seek admission until a stage of the disease had been reached when the chances for successful treatment were greatly diminished. Again, it is a positive fact that relapsing fever, as occurring, presented a degree of gravity (indicated by intense jaundice, passive hemorrhages, suppression of urine, etc.) not met with in any other class of patients. We must call attention to the fact that the black men's medical ward, in common with other medical wards, and probably to even a greater degree, was overcrowded with these grave cases, and that ample space and most free ventilation are very important in the treatment of all zymotic diseases.'"

Typhoid Fever.—In 1876, during the centennial exhibition, typhoid fever was rife in Philadelphia, and the Philadelphia Hospital had many cases, but far less than might have been supposed, as the disease did not so generally affect the poor, but those in better circumstances, who did not, as a rule, seek the hospitals. Over 50 cases, however, were treated.

Puerperal Fever.—More or less of this disease has been present during many years.

In the Annual Statement of board of guardians for year ending December 31, 1865, appears the following report, by Dr. R. M. Girvin, recording clerk:—

"During the last quarter of the year, puerperal peritonitis made its appearance in the obstetrical department, threatening to be epidemic. The lying-in ward was immediately vacated, thoroughly scrubbed and whitewashed, and disinfectants employed. The physician in charge of the cases attended no confinement for two weeks. At the end of one month patients were again admitted to the ward, no return of the disease following. The prompt hygienic measures adopted seem to have arrested the spread of the disease, but three cases occurring, all of which were attacked within seventy-two hours of each other.

"'Dr. J. S. Parry carefully examined such records as could be obtained of this ward, and reports as follows:—

"'Cases of puerperal peritonitis occurred in the house every year from 1841 to 1858, except during 1844 and 1845. In January and February, 1849, the disease prevailed as an epidemic, at the end of which time the ward was vacated for four weeks. It appeared again as an epidemic about the middle of December, 1855. From this time to the 27th of February, the year following, twenty cases occurred, of which thirteen died and seven recovered.'"

Dr. W. H. Parish, December 10, 1879, before the Philadelphia county medical society, read a paper on "Puerperal Septicæmia, chiefly as observed at the Philadelphia Hospital,"[1] from which we make the following quotations, which cover the history of about ten years.

"The following paper is based chiefly on cases occurring in the Philadelphia Hospital between January 1, 1870, and December 1, 1879, a period of about ten years. They are arranged in the books of the white obstetric wards, under the headings of puerperal fever, septicæmia, pyæmia, general peritonitis, pelvic peritonitis, pelvic cellulitis, metritis, phlegmasia dolens, and erysipelas. The sum total of these cases is 181, of which there have been 88 cases of puerperal fever, 8 cases of septicæmia, 2 of pyæmia, 35 of general peritonitis, 5 of pelvic peritonitis, 28 of pelvic cellulitis, 6 of metritis, 6 of phlegmasia dolens, and 3 of erysipelas. I have studied all recorded cases of these diseases, because I believe that nearly all such conditions occurring in lying-in women, either originate in septicæmia, or are modified in some part of their progress by septic influences."

"The record shows that in January, February and March of 1874, pelvic cellulitis and pelvic peritonitis were of unusual frequency, 12 cases of the former and 5 of the latter being so registered on the ward books, and a number of milder cases were not recorded."

"The most serious epidemic occurred during March, April and May of 1877. During these months there occurred 35 cases with the recorded diagnosis of puerperal fever. Most of them were successive cases of delivery, and in not one of them is there recorded an instance of interference or of abnormality during labor. The poison in these cases was transferred in various ways from patient to patient. They were all normal deliveries, but were preceded in the wards by cases of erysipelas, and by one case of fatal traumatic peritonitis, the result of dystocia. This epidemic corresponded in its general manifestations with endemics of so-called puerperal fever seen by various practitioners in practice, and often noticed in lying-in hospitals ever since the establishment of such institutions."

The following extract from a report made to the board of guardians April 26, 1886, is of great interest in connection with the subject of the mortality in the obstetrical wards, both at the time of epidemics or endemics, and at other periods. It also shows in a striking manner the great good accomplished by the training-school for nurses.

"Drs. W. H. Parish and Theophilus Parvin, of the obstetrical staff, submit the following summary, giving the total inmates, women confined, deaths of mothers, deaths of children, total deaths, percentage of total mortality, and mortality of mothers, from January 1, 1875 to April 1, 1886.

"It will be seen that this summary does not tally with the 'summaries' in the published Annual Statements for most of the years referred to. By reason of striking errors in the method of arriving at the rate of mortality, the summary of each published annual statement, excepting those prepared under the care of the resident physician-in-chief, has almost invariably overestimated the rate of mortality in the obstetrical wards. As an illustration of the divergence between the summary here-with submitted and the summaries of the printed annual statements, it may be seen that the printed official annual statement for the year 1877 gives the total mortality in the white obstetrical ward at 41.75 per cent., and that of the colored obstetrical ward at 50 per cent., whereas in this summary, the total mortality, *i. e.*, the mortality among the mothers and infants for 1877, in the two obstetrical wards combined, is given as 11.74 per cent. The latter is as nearly correct as can be arrived at. The error referred to was the result of including the children along with the mothers in the number of inmates, and in determining mortality."

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[1] Philadelphia Medical Times, February 14, 1880.

Obstetrical Wards, Colored and White, Philadelphia Hospital.

Years.	Total Inmates.	Women Confined.	Deaths of Mothers.	Deaths of Children.	Total Deaths.	Percentage of Total Mortality.	Percentage of Mortality of Mothers.
1875	751	266	11	32	43	5.72	4.13
1876	699	244	14	43	57	8.15	5.73
1877	775	277	30	61	91	11.74	10.83
1878	415	209	5	53	58	13.97	2.39
1879	Not ascertainable.	181	6	22	28	Not ascertainable.	3.31
1880	474	183	11	18	29	6.11	6.01
1881	431	196	8	39	47	10.90	4.08
1882	228	102	4	25	29	12.07	3.92
1883	379 ?	205	15	30	45	11.87 ?	7.32
1884	427	219	7	27	34	7.96	3.19
1885	377	194	3	32	35	9.25	1.54
1875 to 1884, inclusive	4,579	2,082	111	322	433	9.45	5.37
From April 1, 1885, to April 1, 1886	483 ?	247	2	18	20	4.14	0.80

"The training-school for nurses took entire charge of the maternity wards in April, 1885. It will be seen that the number of deaths among mothers and children combined has been since the introduction of the trained nurses, 4.14 per cent., to be contrasted with the former mortality over a period of eight (8) years, of 9.45 per cent.; and the number of deaths among mothers, after labor, since the introduction of the new nurses, has been 0.80 per cent., to be contrasted with the former mortality of 5.37 per cent. over a period of nine (9) years. The mortality during the twelve (12) months ending April 1, 1886, was less than during any year referred to in the above table."

"The new maternity buildings were occupied in January, 1885."

"The errors referred to as existing in the figures pertaining to the obstetrical wards affect, also, the total percentage of mortality from all diseases, but to a less degree than might, at first thought, be expected, because these figures merge with those representing the other departments. The printed figures indicating the average total mortality are, therefore, not so far astray as the printed figures indicating the mortality in the obstetrical departments, but for the sake of accuracy, we have substituted the correct ones. In this manner we ascertain the average mortality in the entire hospital, except in the insane department, to be:—

For the year	1875... 8.63	per cent.,	against	9.53	per cent.	in the	printed report.
“	1876...11.31	“	“	12.29	“	“	“
“	1877...10.89	“	“	11.83	“	“	“
“	1878...13.17	“	“	13.70	“	“	“
“	1879...15.30	“	“	15.30	“	“	“
“	1880...13.65	“	“	13.70	“	“	“
“	1881...13.76	“	“	14.80	“	“	“
“	1882... 9.59	“	“	9.59	“	“	“
“	1883...14.35	“	“	14.35	“	“	“
“	1884...10.27	“	“	10.27	“	“	“
“	1885...11.86	“	“	11.86	“	“	“

"It will be seen that no such striking diminution in the mortality of the entire hospital can be claimed for the obstetrical department in the past year. In fact the mortality for 1885 (11.86 per cent.) is 1.59 per cent. greater than that of the previous year, which was 10.27 per cent., which was, however, low as compared with the year before it. This may be partly explained by the fact that the burning of the insane department which occurred February 12, 1885, so crowded the wards of the hospital that hygienic conditions were correspondingly impaired, and this state of affairs continued late into the spring.

"In fairness, too, it should be stated, that generalizations dealing with so short a time as that during which our present system of nursing has been in operation, cannot have as much stress laid upon them as if they had been based upon a longer period.

"There are other points of view than the statistical whence our present system of nursing ought to be judged. By general acknowledgment of those in a position to know, our hospital from being the worst nursed in the city has come to be considered among the best, and other hospitals far more favorably placed as regards advantages of construction, the nature of diseases treated and social position of their patients, now look upon it as a model worthy of imitation. In one hospital, at least, a great revolution in its entire executive management is about to be inaugurated, which would not have been thought of for many years, at least, if the system at the Philadelphia Hospital had not attracted the attention of those in charge and secured their approval. Further, one of our graduate nurses has recently been appointed chief nurse of the Pennsylvania Hospital.

"Finally, our present system of nursing has produced results in a direction which was scarcely contemplated in its conception. Not only are our patients better cared for and more comfortable, but a refining influence is also exerted upon them of which at first thought they seem hardly susceptible, and a degree of self respect is engendered which contributes to the better discipline which characterizes the wards throughout.

"Respectfully submitted by order of the medical board,

W. H. Parish, M.D.,
Theophilus Parvin, M.D.,
J. William White, M.D.,
George McClellan, M.D.,
E. T. Bruen, M. D.,
J. C. Wilson, M.D.,
James Tyson, M.D.,
Chas. K. Mills, M.D.,
Committee."

Influenza.—This pandemic which swept over the world in 1889–90, was the cause of over three hundred severe cases being treated in the Philadelphia Hospital. The poor consumptives were very unfortunate, forty-five in the medical wards being hurried off during three months, from the middle of December, 1889, to the middle of March, 1890. During this period, sixteen deaths occurred from pneumonia, all largely due to the epidemic. The mortality was so great among the phthisis cases in the fall of 1890, that these wards presented to those familiar with their usual appearance a very noticeable diminution of the array of chronic cases. There were fourteen resident physicians and twenty-five nurses sick with the disease, thus damaging the service of the hospital. In the insane department fifty cases occurred among the patients.

NOTES ON THE HISTORY AND ORGANIZATION OF THE PHILADELPHIA HOSPITAL SINCE 1860.

By CHARLES K. MILLS, M.D. and ROLAND G. CURTIN, M.D.

We will not attempt a continuation of Dr. Agnew's elaborate medical history of the Philadelphia Almshouse, as the allotted space in the present volume will not permit this to be done, but will simply note some of the most important historical facts of the last thirty years, and record the main changes and new departures in the organization of the medical board. The notes given would be much assisted by tables of the physicians and surgeons who have been connected with the hospital, but although, as stated in the preface, such tables have been nearly completed, their publication will have to be postponed to another volume of Reports, as the present has already extended to the full limits assigned in the authority given for its publication.

According to the rules of 1861, the medical board of the hospital consisted of four physicians, four surgeons, and four accoucheurs. The hospital was divided into three departments, medical, surgical and obstetrical, and the term of each physician, surgeon and accoucheur was three consecutive months, each staff regulating the order in which its different members served. It was the duty of each member of the staff in attendance to visit the institution four times a week, or oftener, if necessary.

At various periods since 1861, efforts have been made, sometimes successful and sometimes not, to increase or decrease the number of members of the different staffs of the hospital. Four on each staff remained the constitution of the board until 1874. During this year the surgical and obstetrical staffs were increased from four members to five, the medical staff practically remaining at four, although Dr. D. D. Richardson, superintendent of the insane department, made five, as he was regarded officially as a member of the medical staff. Those added to the staffs were Dr. S. W. Gross to the surgical, and Dr. J. R. Burden, Jr., to the obstetrical. A sudden jump was taken in 1875. The physicians and surgeons were increased to eight members each, while the accoucheurs remained at five. To the surgical staff were added Drs. N. L. Hatfield, J. William White and W. G. Porter; to the medical, Drs. John M. Keating, E. T. Bruen, J. C. Wilson and J. Guiteras. These new names appear in the Annual Statement of the board of guardians as full members of the medical board, and were so recognized officially from the first; but for a time the impression seems to have existed with some that the new members were to be regarded as juniors, not possessing all the privileges with reference to lectures and some other matters as the four seniors, a view which, for a time, caused some friction. Soon, however, all the members of the three staffs were considered as upon the same footing.

In 1876 and 1877, important changes were made. The staff of obstetricians was increased to eight members to correspond with the surgical and medical staffs. Of the staff of 1875, only Drs. Edward L. Duer and W. A. Warder remained. Dr. R. M. Girvin and J. R. Burden Jr., had resigned, Dr. J. R. Parry had died, and the new members added to the obstetrical staff were Drs. J. B. Walker, E. E. Montgomery, S. S. Stryker, J. W. Linn, M. D. Musser and W. H. Parish. In September, 1877, three new special departments were added to the hospital, namely, the neurological, ophthalmological and dermatological. Dr. Charles K Mills was appointed to organize and take charge of wards for nervous diseases; Dr. E. O. Shakespeare was made ophthalmologist, and Dr. L. A. Duhring dermatologist. Subsequent to this time the changes in the organization of the medical board have not been many, although some of them have been important The membership of the neurological staff has been increased until now it numbers four; the ophthalmological and dermatological staffs have each been enlarged to two members; and in 1890, a laryngological department was founded, and two laryngologists, Drs. C. Jay Seltzer and George Morley Marshall were appointed. Several important changes have been made with reference to the positions of pathologist, assistant pathologist, curator and microscopist, and in 1890, a bacteriologist was appointed.

From 1880 to 1884, the medical and surgical staffs numbered nine. One reason for this abnormal increase was probably the great pressure brought upon the governing board in behalf of gentlemen who had command of powerful influence. When in 1884, it was suggested to decrease the staffs, the medical board united in opposition to this, possibly influenced to some extent by the uncertainty as to who would be selected for the axe. Notwithstanding this, however, at a meeting of the board of guardians, October 27, 1884, a rule was adopted reducing each staff to six. The rule in full was, that the medical board should consist of a medical, surgical and obstetrical staff, not exceeding six members each; also of a neurologist, a dermatologist, a pathologist, who should serve as curator, a microscopist, and a physician to the insane department.

In December, 1889, numerous changes were made in the personnel of the medical board.

The rules for 1890 divide the hospital into four departments, viz., a medical, surgical, obstetrical and neurological; the medical including the medical wards only; the surgical, the surgical, venereal, eye and skin wards; the obstetrical, maternity, gynecological and convalescent wards, the nursery and the children's department; the neurological, the nervous wards and the insane department. In addition special wards are under the care of ophthalmologists, dermatologists and laryngologists. The terms of service of the visiting medical officers is fixed by their respective staffs.

The medical board under the present rules is elected annually in December, by a vote of the majority of the members of the board of charities and correction, and vacancies on the board are filled by a similar vote for the unexpired term, at the next stated meeting of said board, following the one at which the vacancy is declared. The medical, surgical, and obstetrical staffs are composed of eight members each; the neurological staff of four; in addition, the board consists of two ophthalmologists, two dermatologists, two laryngologists, a pathologist, with two assistant pathologists, and a bacteriologist. The board elects annually by ballot a president and a secretary.

OFFICERS OF THE MEDICAL BOARD.

It may be of some interest to record the names of those who have been honored at various times by election to the offices of the medical board. The president of the board has, as a rule, been chosen from the older and more distinguished members. The record of these positions is not a complete one, but from the minutes of the medical board some facts in regard to them have been obtained. The minute book now in the hands of the secretary begins in 1859, but for several years no minutes appear.

At a meeting of the board, held August 13, 1859, Dr. Samuel D. Gross was nominated and unanimously elected chairman, and Dr. John Wiltbank was appointed secretary. Dr. Edward L. Duer subsequently became secretary; March 30, 1867, he resigned, and Dr. William Pepper was appointed in his place. January 15, 1868, Dr. Alfred Stillé was elected president, and was re-elected for several years, resigning March 8, 1872, when Dr. J. L. Ludlow was elected. January 4, 1869, Dr. Pepper resigned the secretaryship, and was succeeded by Dr. Jonn S. Parry, who continued in this position until February 17, 1871, when he resigned and Dr. Harrison Allen was elected. Dr. Allen was succeeded by Dr. John Guiteras, October 7, 1878. The next year Dr. Guiteras having resigned from the hospital to go into the Marine Hospital service, Dr. E. T. Bruen was elected secretary, and continued to serve as such until his death in 1889. Dr. Ludlow was succeeded as president by Dr. James Tyson, March 10, 1885. Dr. Roland G. Curtin was elected president January 6, 1890. Since the death of Dr. Bruen Dr L. Steinbach has been secretary.

LIST OF MEMBERS OF THE MEDICAL BOARD.

With Addresses, Place and Time of Graduation, date of Appointment to the Philadelphia Hospital, and Positions held in other Institutions.

In the main, this list as arranged represents the order of seniority of the different members of the medical board. In a few instances, however, it does not, as present members of the board are serving for a second period. Dr. James B. Walker was first elected in 1876. During a few months in 1885 he was not a member of the board, but was re-appointed during the same year. Dr. E. E. Montgomery was first elected in 1877; ceased to be a member of the board in 1885, and was re-appointed in 1886. Dr. James Hendrie Lloyd was elected to the neurological staff in place of Dr. Roberts Bartholow, who resigned January 1, 1888; he served until December, 1889, and was re-appointed in December, 1890. Some members of the different staffs have been elected during the same year, or even at the same meeting of the governing board, and practically the latter do not differ in seniority. In these cases we have taken the names in the order in which they appear in the printed Reports of the department.

William G. Porter, M.D., 1223 Spruce street. Graduate of Univ. Penna., 1868. Appointed 1875. Surgeon to the Presbyterian Hospital; Consulting Surgeon to the Philadelphia Dispensary.

James B. Walker, M.D., 1617 Green street. Graduate of Univ. Penna., 1872. Appointed 1876; served until 1885; re-appointed same year. Professor of the Practice of Medicine in the Woman's Medical College of Pennsylvania; Consulting Physician and Lecturer on Clinical Medicine in the Woman's Hospital of Philadelphia; Secretary of the American Climatological Society, etc.

E. E. Montgomery, M.D., 1818 Arch street. Graduate of Jefferson Medical College, 1874. Appointed 1877; served until 1885; re-appointed 1886. Professor of Gynecology in the Medico-Chirurgical College; Gynecologist to the Medico-Chirurgical Hospital.

Charles K. Mills, M.D., 1909 Chestnut street. Graduate of Univ. Penna, 1869. Appointed 1877. Professor of Diseases of the Mind and Nervous System in the Philadelphia Polyclinic; Lecturer on Mental Diseases in the University of Pennsylvania; Lecturer on Nervous Diseases in the Woman's Medical College of Pennsylvania.

E. O. Shakespeare, M. D., 1336 Spruce street. Graduate of Univ. Penna., 1869. Appointed ophthalmologist, 1877; curator, 1880; pathologist, 1882; bacteriologist, 1889.

Henry F. Formad, M.D., 3535 Locust street. Graduate of Univ. Penna., 1877. Appointed microscopist, 1878; pathologist, 1887. Demonstrator of Pathology in the University of Pennsylvania; Coroner's Physician, Philadelphia.

Roland G. Curtin, M.D., 22 South Eighteenth street. Graduate of Univ. Penna., 1866. Appointed 1880. Consulting Physician to the Rush Hospital for Consumptives, and to St. Timothy's Hospital and the Midnight Mission; Visiting Physician to the Presbyterian Hospital; Lecturer on Physical Diagnosis in the University of Pennsylvania; Assistant Physician to the Hospital of the University of Pennsylvania, West Philadelphia.

W. Joseph Hearn, M.D., 1130 Walnut street. Graduate of Jefferson Medical College, 1867. Appointed 1882. Visiting Surgeon to the Jefferson Medical College Hospital; Lecturer on Clinical Surgery in the Jefferson Medical College.

Clara Marshall, M.D., 131 South Eighteenth street. Graduate of Wom. Med. Coll. Penn., 1875. Appointed 1882. Dean and Professor of Therapeutics in the Woman's Medical College of Pennsylvania; Attending Physician to the Girls' Department of the House of Refuge.

Theophilus Parvin, M.D., 1626 Spruce street. Graduate of Univ. Penna., 1852. Appointed 1884. Professor of Obstetrics and the Diseases of Women and Children in Jefferson Medical College, etc.

Lewis W. Steinbach, M.D., 716 Franklin street. Graduate of Jefferson Medical College, 1880. Appointed 1885. Surgeon to the Jewish Hospital; Professor of Surgery in the Philadelphia Polyclinic.

A. W. Ransley, M. D., 1222 S. Tenth street. Graduate of Univ. Penna., 1875. Appointed 1885. Surgeon to St. Agnes' Hospital.

John H. Musser, M.D., N. E. corner Fortieth and Locust streets. Graduate of Univ. of Penna., 1877. Appointed 1885. Assistant Professor of Clinical Medicine in University Pennsylvania; Physician to the Presbyterian Hospital; Consulting Physician to the Woman's Hospital, and to the West Philadelphia Hospital for Women.

Guy Hinsdale, M.D., 4011 Chestnut street. Graduate of Univ. Penna., 1881. Appointed 1886. Assistant Physician to Presbyterian Hospital; Assistant Physician to Orthopedic Hospital and Infirmary for Nervous Diseases; Curator of the College of Physicians.

Henry W. Stelwagon, M.D., 1411 Spruce street. Graduate of Univ. Penna., 1875. Appointed 1887. Clinical Lecturer on Dermatology in the Jefferson and Woman's Medical Colleges; Physician to the Skin Departments of the Howard Hospital and of the Northern Dispensary.

Francis X. Dercum, M.D., 636 North Eighth street. Graduate of Univ. Penna., 1877. Appointed 1887. Instructor in Nervous Diseases in the University of Pennsylvania; Assistant Physician to the Orthopedic Hospital and Infirmary for Nervous Diseases.

G. E. de Schweinitz, M.D., 1401 Locust street. Graduate of Univ. Penna., 1881. Appointed 1887 Ophthalmic Surgeon to the Children's Hospital, and to the Orthopedic Hospital and Infirmary for Nervous Diseases; Surgeon to the Dispensary of the University Hospital for Diseases of the Eye.

John Blair Deaver, M.D., 120 South Eighteenth street. Graduate of Univ. Penna., 1878. Appointed 1887. Professor of Surgery in the Philadelphia Polyclinic; Demonstrator of Anatomy and Lecturer on Surgical Anatomy in the University of Pennsylvania; Attending Surgeon to the German, St. Mary's and St. Agnes' Hospitals; and Consulting Surgeon to St. Timothy's Hospital.

Barton Cooke Hirst, M.D., 248 South Seventeenth street. Graduate of Univ. Penna., 1883. Appointed 1887. Professor of Obstetrics in the University of Pennsylvania; Obstetrician to the University and Maternity Hospitals; Gynecologist to the Orthopedic Hospital.

James Hendrie Lloyd, M.D., S. W. corner Walnut and Fortieth streets. Graduate of Univ. Penna., 1878. Appointed 1888; served until December, 1889; re-appointed December, 1890. Physician to the Home for Crippled Children.

Edward P. Davis, M.D., 250 South Twenty-first street. Graduate of Rush Medical College, Chicago, 1882. Appointed 1888. Professor of Obstetrics and Diseases of Children in the Philadelphia Polyclinic; Clinical Lecturer on Obstetrics in the Jefferson Medical College; Attending Physician to the Foulke and Long Orphanage, and to the Clinton street Boarding Home for Women.

Frederick P. Henry, M.D., 1635 Locust street. Graduate of College of Physicians and Surgeons, New York, 1868. Appointed 1888. Physician to the Jefferson Medical College Hospital; Lecturer on Clinical Medicine at the Jefferson Medical College.

Wharton Sinkler, M.D., 1606 Walnut street. Graduate of Univ. Penna., 1868. Appointed 1888. Physician to Orthopedic Hospital and Infirmary for Nervous Diseases; Manager of the Episcopal Hospital; President of the American Neurological Association.

J. M. Anders, M.D., 1637 North Broad street. Graduate of Univ. Penna., 1877. Appointed 1889. Professor of Clinical Medicine and Hygiene in the Medico-Chirurgical College; Physician to the Episcopal and to the Medico-Chirurgical Hospitals.

W. E. Hughes, M.D., 3796 Baring street. Graduate of Univ. Penna., 1880. Appointed 1889. Secretary of the Pathological Society of Philadelphia.

Solomon Solis-Cohen, M.D., 219 South Seventeenth street. Graduate of Jefferson Medical College, 1883. Appointed 1889. Professor of Clinical Medicine and Applied Therapeutics in the Philadelphia Polyclinic; Lecturer on Clinical Medicine and Therapeutics in the Jefferson Medical College; Lecturer on Therapeutics in Dartmouth Medical College; Consulting Physician to the Jewish Hospital.

Eugene L. Vansant, M.D., 1632 Chestnut street. Graduate of Jefferson Medical College, 1884. Appointed 1889. Demonstrator of Histology in Jefferson Medical College; Visiting Physician to the Howard Hospital.

Orville Horwitz, M.D., 1115 Walnut street. Graduate of Jefferson Medical College, 1883. Appointed 1889. Demonstrator of Surgery in Jefferson Medical College; Chief of the Out-Door Surgical Department of Jefferson Medical College Hospital.

Ernest Laplace, M.D., 1617 Arch street. Graduate of Univ. La., 1884. Appointed 1889. Professor of Clinical Surgery in the Medico-Chirurgical College.

William Easterly Ashton, M.D., 338 South Fifteenth street. Graduate of Univ. Penna., 1884. Appointed 1889.

C. S. Bradfute, M.D., 1336 Spruce street. Graduate of Jefferson Medical College, 1887. Appointed 1889. Demonstrator of Therapeutics in the Jefferson Medical College.

GEORGE M. GOULD, M.D., 119 South Seventeenth street. Graduate of Jefferson Medical College, 1888. Appointed 1889.

J. ABBOTT CANTRELL, M.D., 261 South Fifteenth street. Graduate of Jefferson Medical College, 1885. Appointed 1889. Adjunct Professor of Dermatology in the Philadelphia Polyclinic.

J. LEFFINGWELL HATCH, M.D., 3615 Locust street. Graduate of Univ. Penna., 1888. Appointed 1889. Lecturer on Bacteriology and Assistant Demonstrator of Morbid Anatomy and Pathological History in the University of Pennsylvania; Curator of the Pathological Society of Philadelphia.

HENRY WARE CATTELL, M.D., 3709 Spruce street. Graduate of Univ. Penna., 1887. Appointed 1889. Assistant Demónstrator of Chemistry in the University of Pennsylvania; Physician in the Children's Dispensary, St. Clement's Hospital; Assistant Surgeon to the Orthopedic Dispensary of the University Hospital.

JAMES M. BARTON, M.D., 1337 Spruce street. Graduate of Jefferson Medical College, 1868. Appointed 1890. Surgeon to the Jefferson Medical College Hospital.

C. JAY SELTZER, M.D., 23 South Sixteenth street. Graduate of Univ. Penna., 1881. Appointed 1890. Ophthalmic Surgeon to Howard Hospital and Southern Home for Destitute Children; Assistant Ophthalmologist and Surgeon to the Wills Eye Hospital.

GEORGE MORLEY MARSHALL, 1700 Girard avenue. Graduate of Univ. Penna., 1886. Appointed 1890. Attending Physician to St. Joseph's Hospital.

ROBERT H. HAMILL, M.D., 330 South Sixteenth street. Graduate of Univ. Penna., 1878. Appointed 1890. Obstetrician to Maternity Hospital; Gynecologist to the Howard Hospital.

GEORGE I. MCKELWAY, M.D., 116 North Seventeenth street. Graduate of Univ. Penna., 1889. Appointed 1890.

FREDERICK A. PACKARD, M.D., 259 South Fifteenth street. Graduate of Univ. Penna., 1885. Appointed 1890. Instructor in Physical Diagnosis University of Pennsylvania; Visiting Physician to the Medical Dispensary of the Episcopal Hospital.

RICHARD C. NORRIS, M.D., 1234 Spruce street. Graduate of Univ. Penna., 1887. Appointed 1890. Demonstrator of Obstetrics in the University of Pennsylvania.

J. CHALMERS DA COSTA, M. D., 2050 Locust street. Graduate of Jefferson Medical College, 1885. Appointed 1890.

Since the "Bullitt bill" has been in operation, certain rules and regulations adopted by the mayor and his heads of departments apply to the examination of some of the many who receive appointments in the Philadelphia Hospital. The mayor is chairman of the civil service board, which is composed of himself and the heads of departments. Boards of examiners are appointed for determining the fitness of all applicants for appointment or promotion, by open, competitive examination. The separate boards are arranged under various "schedules." Under schedule E, for instance, comes the examination of surgeons, physicians, veterinary surgeons, chemists, druggists, superintendents, moral instructors, nurses, heads of training schools, matrons, housekeepers, helpers and attendants at the house of correction, almshouse and hospital. The board of examiners for this schedule is composed of three physicians or surgeons in good standing.

During 1887–88–89, for the examination of nurses, heads of the training schools, attendants, and assistant physicians in the insane department of the hospital, Drs. James Tyson, Charles K. Mills, Francis X. Dercum and Edward Martin served, Dr. Martin for part of the term, succeeding Dr. Tyson, who resigned. In 1890, the work was divided into two classes, and resident physicians as well as the other medical attendants were included in those to be examined under the first class. The board of examiners appointed for this class consists of Drs. Henry C. Chapman, William F. Waugh and Roland G. Curtin. For the examination of the second class, including superintendents, moral instructors, nurses, heads of training schools, matrons, housekeepers, helpers and attendants, the board appointed consists of Drs. James C. Wilson, Robert Dornan and Alexander W. Ransley.

RECORDER OR REGISTRAR.

At various times in the history of the Philadelphia Hospital, efforts have been made to introduce an efficient system of keeping clinical and other records. Dr. Agnew refers to the fact that as early as 1824, the medical board advocated the election of two additional pupils as recorders, but, as he states, nothing of practical importance seems to have come of the creation of this office. To this day efforts in the same direction have not been rewarded with much success. In the hospitals abroad, notably in those of London, the position of registrar is ranked as one of importance; in some instances the office is sub-divided into senior and junior registrar. The positions seem to be sought after, and to be used to the great advantage, both of patients and physicians. No good reason exists why this should not be the case in the Philadelphia and in other American hospitals.

On December 10, 1851, the minutes of the stated meeting of the board of guardians show that a communication was read from Drs. DaCosta and Tutt, asking for the appointment of a medical recorder to aid the attending physicians and surgeons, but so far as we can learn this request was not granted. In 1885 the medical board of the hospital, after several meetings, adopted a resolution recommending the appointment of registrars, and soon after the position was created by the board of guardians, and four registrars were elected; one for the medical wards; one for the surgical, venereal, skin and eye wards; one for the obstetrical, gynecological and children's wards, and one for the nervous and insane wards. The duties of registrar have varied somewhat under different rules, but in the main they have been much the same as in the printed rules for May, 1890, of which the following are the chief:

"It shall be the duty of the registrar to see that a correct and sufficiently full history is written for each case within forty-eight hours after admission, and that on the discharge of such case, the diagnosis, treatment, and result of treatment, are properly observed on the history sheets.

"The registrar shall refer back to the resident such histories as are unsatisfactory, and on failure of the latter to return them properly filled within twenty-four hours, shall report, in writing, such failure to the chief resident physician.

"The registrar shall, at the end of each year, tabulate the cases in the respective wards for insertion in the annual report, and the labor of preparing this report shall chiefly devolve on the four registrars.

"The registrar shall visit the hospital not less than three times each week, recording in the proper book the time of arrival and departure. He shall see that the head nurse of each ward keeps a record of all the operations performed in that ward. He shall personally take the histories of such cases as are designated by his chiefs, and shall in the absence and at the request of the latter, after the other members of the staff have been asked to serve, act as their substitute in the wards."

RESIDENT PHYSICIANS.

The system of resident physicians has changed a number of times in the history of the institution. Two forms of medical residency must be considered in recalling the facts—the administration under a resident physician-in-chief, and the service of resident physicians, usually recent graduates, elected for short periods. Dr. Agnew has given the history of the administration under chief resident physicians up to the period with which his lecture closes. From this record it will be seen that between 1845 and 1854, this position was in existence and was occupied by several doctors, each filling comparatively short terms. In 1854, a board of lecturers on clinical medicine and surgery was appointed, but the administration by a resident-in-chief was continued. In 1859, the office of chief resident was abolished and the hospital was placed in charge of a visiting medical board.

So far as we know, from this time until 1870, no resident executive position in the hospital was in existence. At the meeting of the board of guardians November 21, 1870, a discussion took place regarding the expediency of appointing a hospital warden, whose duties, salary, etc., were also considered. At a meeting of the board held December 28, 1870, L. D. Kemple was elected hospital warden. The name of this gentleman appears as hospital warden in the Annual Statement of the guardians for December 31, 1870. Neither the position nor the name of its occupant, however, appears in the Annual Statements for 1871, 1872, 1873, 1874. Probably the position only remained in force for a short time. If such was the case, in 1875, it was re-created and Mr. William Airey was appointed, and continued to hold the office until 1882. In 1882, Mr. T. S. Collins was appointed hospital warden, and was succeeded in 1883, by Dr. Thomas N. McLaughlin, who was at the time one of the staff of internes. In 1885, the position of hospital warden was again abolished, and that of physician-in-chief to the hospital created in its stead, Dr. McLaughlin being elected to the new position. On the re-organization of the hospital in 1887, Dr. George M. Wells was made chief resident physician, and the position was now made to include that of physician-in-chief to the insane department. Dr. Wells resigned January 13, 1890, his resignation taking effect about one month later. In a short time the present incumbent, Dr. Daniel E. Hughes, was appointed.

The duties of the resident-in-chief or chief resident physician have varied somewhat under the rules adopted at different periods; those of hospital warden were similar, but not as extensive, and did not include some of the powers which could only be exercised by a medical graduate. The following are the chief duties as prescribed in the rules adopted in May, 1890:—

He shall have the general supervision of the hospital in all its departments; he shall be physician-in-chief of the insane department of the hospital; he shall have full control of the resident physicians, and shall see that they faithfully perform their duties and conduct themselves with decorum at all times when within the institution, and shall report to the bureau any dereliction on their part; he shall have control and general management of all the nurses and attendants connected with the hospital. The library shall be under the superintendence and direction of the chief resident physician; and it shall be the duty of the person engaged for that purpose to see that all the books are catalogued, labelled and numbered.

Resident medical students or resident physicians serving for comparatively short periods have been a part of the medical service of the hospital as far back as 1808, and perhaps earlier. In 1788, as related by Dr. Agnew, an apothecary was first appointed, and he was required to be either a graduate or an advanced student, so that this might be regarded as the beginning of the office of resident physician. A little later, more than one resident student was deemed necessary, and the manner in which the number of resident pupils was increased, and in which they were sub-divided into seniors and juniors, is also related by Dr. Agnew. In 1823, a rule was adopted requiring the resident physicians to be graduates, and from that period to the present the house has always had a corps of resident physicians, the number of which has gradually increased, until at the present time the maximum is twenty, to serve fifteen months each, and sixteen to be elected annually.

Our list of resident physicians, which has grown into hundreds and reaches back to the beginning of the present century, contains not a few of the names which have reached the highest distinction in American medicine. In 1862, Dr. Agnew said that among the names of the resident physicians of the Philadelphia Hospital will be found those of the most distinguished physicians, dead and living, from the north and south, for the last quarter of a century, and such a statement can be made with equal, if not greater truth of those who have occupied the position of Blockley internes since the year 1862.

At present and for a number of years the positions of resident physicians, filled by competitive examination, have been held, as a rule, by young men and women of the highest ability and character. The rules governing them are comprehensive and strict in character; they have great opportunities for improvement and advancement, and their duties are sufficiently arduous and exacting to call forth the best qualities of mind and body.

ASSOCIATION OF EX-RESIDENT PHYSICIANS OF THE PHILADELPHIA HOSPITAL.

On October 25, 1887, a meeting of the ex-resident physicians of the Philadelphia Hospital was held in the lower lecture-room of the college of physicians, Thirteenth and Locust streets. Dr. S. W. Gross was elected chairman, and Dr. J. B. Walker temporary secretary. A committee of six was appointed to draft a plan for a permanent organization and a banquet. This committee consisting of Drs. H. C. Wood, William H. Parish, R. Wilmot Deaver, William G. Porter, William A. N. Dorland, DeForrest Willard and S. W. Gross (ex officio), was instructed to report at such time as it deemed suitable, and to present as complete a list of ex-resident physicians as possible. On motion it was decided that the organization should be composed only of the ex-resident physicians and resident physicians of the Philadelphia Hospital.

On November 16, 1887, another meeting of the resident physicians of the Philadelphia Hospital was called, the committee on organization made a report, and the following articles were adopted:—

1. That the association shall be composed of the ex-resident and resident physicians of the Philadelphia Hospital.

2. That the officers shall consist of a president, two vice-presidents, a secretary and an executive committee.

3. The executive committee shall be composed of seven members. The president, vice-presidents and secretary shall be ex-officio members of the commiitee.

4. That it shall be the duty of the executive committee to make all arrangements for an annual banquet, which shall be held on the first Tuesday in December.

5. That the president shall appoint a nominating committee, who shall report at the annual banquet the names of the officers and executive committee for the ensuing year, and that such report shall be equivalent to an election.

The following were the first officers elected : president, Prof. Alfred Stillé ; vice-presidents, Prof. S. W. Gross, Dr. S. S. Stryker ; secretary, Dr. W. A. N. Dorland ; executive committee, Drs. J. Ewing Mears, R. G. Curtin, J. W. O'Neill, J. H. Musser, R. W. Deaver, H. W. Elmer, J. H. Jamre.

On motion the executive committee was authorized to provide a banquet on the evening of the 6th day of December.

Each year since, the Association has held a meeting and had a banquet. Two addresses before the Association by Dr. Stillé and one by Dr. Bush are given in this volume.

PHILADELPHIA HOSPITAL MEDICAL SOCIETY.

The resident physicians on duty at the hospital in 1886, organized a society for the advancement of medical science, and the promotion of good fellowship among the resident physicians of the hospital. It is called the Philadelphia Hospital Medical Society. Its meetings are held every Wednesday evening at 9 P. M. The programme includes: 1. Minutes; 2. Reading of formal papers and discussion of same; 3. Reports of cases by members; 4. Business. Once a month a physician not a member, addresses the society by invitation. At each meeting some member appointed for the purpose gives an epitome of recent medical literature.

CHILDREN'S ASYLUM.

A few notes with reference to this asylum have been received from Dr. W. H. Wallace, formerly superintendent of the insane department of the hospital, and now in charge of the Mary Shields' almshouse fund.

According to these its first location was on Fifth street, between Pine and Federal streets, at the house of Joseph J. Wharton. This property was afterwards purchased by the guardians of the poor. Among the earliest physicians were Drs. J. G. Nancrede, William Price, Benjamin Coates, and C. D. Skerritt. In 1835, Joshua M. Wallace was elected resident physician to the asylum The obstetricians were also required to attend the asylum, but in April, 1835, Dr. H. L. Hodge, then obstetrician to the hospital, declined longer to attend the children, and a visiting physician was appointed for the asylum, with an assistant, who had to be a graduate and resident of the house. He recommended other important changes such as better nurses, and more conveniences for the rooms, which would be calculated to diminish the mortality of the children, which had been great. April, 1835, twenty children had died of measles and sore mouth. The recommendations of Dr. Hodge were acceded to and a former resident student, Dr. Anderson, was appointed physician to the asylum with a salary of $200. He was required to visit the asylum daily, and Dr. J. M. Wallace was also elected resident physician; both were appointed on trial for one month.

The original asylum was sold in 1835, and the children were removed to the institution west of the Schuylkill. When they were first brought to the new almshouse they were placed in the east end of the northwestern range of buildings. In 1884, the asylum was removed to the old farm house on the east side of the present Thirty-fourth street, where it is at present located.

Among other resident physicians in 1836, was Dr. Alfred Stillé, who, in his interesting reminiscences published in this volume, makes some references to his experiences in the children's asylum.

In the rules of the guardians for 1828, is given a statement of the duties of the committee of the children's asylum. This committee consisted of four members, two from the city and two from the districts. They were to meet "on the fourth day, called Wednesday"; they were to authorize the purchase of all the articles; were required to examine into the state of the institution, and to transact such business as might be necessary for the comfort of the children. They were also required to keep record of all asking admission, and of all children received into the department, whether from the city or from the districts, also the names of the visitors, and a list of deaths, discharges, or elopements of children. The committee met monthly. On the fourth Monday in May of each year they reported to the board of guardians the bills for supplies, but before presentation they were required to be signed and certified to by the matron. The published rules for 1861, 1844 and other years, were materially the same as those for 1828.

In connection with the administration of the almshouse is an office known as visitor of children, the duties of which are largely concerned with the children's asylum. The rules which govern the administration of this office are to be found in copies of the printed rules published at different times, as in 1861, 1864, 1884, 1890. This office at present is filled by Mr. Geo. Milliken.

The visitor sees to all children coming under the care of the department of charities and correction whether admitted into the children's asylum or not. It is his duty to see that no child over two years of age remains in the house for a longer period than permitted by act of assembly.

It is also his duty to see that the children are bound out to families or institutions, and to see that they are cared for properly.

In case of application for children to be placed out, he makes careful investigation into the character, home and surroundings of the applicant; he sends the children out on trial and reports to the board of charities and correction any unfair or unkind treatment to the children that have been bound out. He is required to report to the board from time to time and also to present a report of his work to the department.

THE INSANE DEPARTMENT.

Prior to 1859, as stated by Dr. Agnew, the insane department of the Philadelphia Hospital was not in an organized condition, although in 1849, Dr. Henley was appointed assistant physician to take charge of the insane, and also of the smallpox hospital. In 1852, he was succeeded by Dr. Benton, but was reappointed in a short time. In 1854, the office was abolished and the insane were under no one in particular until the selection of Dr. J. W. Butler, in 1861. From this time however, they have received especial attention, and at a meeting of the board of guardians, November 18, 1861, a resolution was passed that the part of the almshouse containing the insane be called the Insane Department of the Philadelphia Hospital. It was not until January 6, 1868, that the superintendent of the insane department was declared to be a member of the medical board.

In November, 1866, Dr. Butler was succeeded by Dr. D. D. Richardson who served steadily from this time to September, 1880 as physician-in-chief, when Dr. A. A. McDonald was elected to succeed him. Dr. Richardson at this time was elected superintendent of the State Hospital for the Insane, at Warren, Pennsylvania; he was recalled to Blockley in 1881, Dr. McDonald having resigned. In 1885, he was succeeded as physician-in-chief by Dr. Philip Leidy.

On May 26, 1884, the committee on the insane department of the board of guardians, recommended the appointment of consulting physicians to the department, whose duty it should be in connection with the resident physician-in-chief to make personal examination of the patients, and to report to the board making such recommendations as should be declared expedient. It was also further suggested that the medical staff should in no way be connected with the insane department. This was the initiation of the movement for the appointment of a consulting staff.

The first appointments of consulting physicians made December 29, 1884, were Drs. S. Weir Mitchell, Horatio C. Wood, and Charles K. Mills.

In 1885, Dr. Wood was succeeded by Dr. Andrew Nebinger. Dr. Andrew Nebinger died on April 26, 1886, before having an opportunity of making use of his position for the benefit of the hospital. Dr. James A. Simpson was elected in place of Dr. Nebinger.

December 27, 1886, Dr. S. Weir Mitchell resigned from the staff, and a vote of thanks was tendered to him for his valuable services. At the same meeting at which Dr. Mitchell's resignation was presented and accepted, the consulting staff submitted a report, calling attention to the over-crowding and to the need of more attendants, and the desirability of more trained nurses who had been systematically instructed in the work of the department. Dr. Mitchell was succeeded as consultant by Dr. Philip Leidy, who resigned about the same time as physician-in-chief.

Early in 1887, Dr. William H. Wallace was elected physician-in-chief of the department. Dr. Wallace continued to hold the position for a few months only, Drs. Mills, Simpson and Leidy acting as consultants, until the hospital was reorganized under the administration of the new board of charities and correction, in April, 1887. At this time the neurological department was enlarged to include both wards for diseases of the nervous system and the insane department. The position of physician-in-chief to the insane department as a separate office was abolished, and the chief resident physician of the hospital was also made chief of the insane department. The neurological staff which at the time of the change consisted of Drs. Mills and Bartholow, was increased to four, namely, Drs. C. K. Mills, H. C. Wood, F. X. Dercum and Roberts Bartholow.

In January, 1888, Dr. Bartholow resigned and Dr. James Hendrie Lloyd was elected in his place. During the same year Dr. H. C. Wood resigned and Dr. Wharton Sinkler was his successor. In December, 1889, Dr. C. S. Bradfute was elected a member of the staff in place of Dr. Lloyd. Dr. Bradfute resigned in the fall of 1890, and Dr. Lloyd was reappointed.

During the year 1890 the rules with reference to the organization of the insane department were again changed. The chief resident physician of the general hospital continued to act as physician-in-chief of the insane department, but the neurological staff of the hospital was made a consulting instead of a visiting staff to the insane department.

The insane department has experienced several great catastrophies. The two most remarkable of these were the falling in of a wall and a series of arches July 20, 1864, and the great fire which occurred on the evening of February 12, 1885. Both reresulted in serious loss of life.

At the meeting of the board of guardians, August 8, 1864, a long communication was presented in regard to the catastrophe, condemning the safety of the building and the reckless manner in which alterations were made in 1849. The department was directed to be examined as to safety by competent persons.

Dr. S. W. Butler, the superintendent of the insane department in his report to the board of guardians for the year 1864, gives a clear account of the first of these accidents. "At a little before six o'clock in the morning of the 20th of July, the foundation of a pier which was the central support of a series of arches, a chimney stack and walls on which rested the joists of the second, third and attic stories of a tier of wards, gave way, and without the slightest warning the whole division wall and chimney stack fell with a crash burying many of the patients in the ruins. Of these fifteen were killed outright or died soon after they were extricated, and twenty-five were more or less severely injured, of whom two subsequently died."

The terrible fire in the insane department, still fresh in the memory of the community, broke out at eight o'clock on the evening of February 12, 1885. Official investigation made later seemed to demonstrate that it was the act of a half witted or imbecile patient. Eighteen lost their lives in this fire; seven of these died from suffocation and eleven from burns and various injuries. A more than equal number were wounded, many of them seriously, and a large number of missing were reported.

Much that was interesting for the medical history of this institution occurred in consequence of this fire. Only a few weeks before its occurrence, the consulting physicians to the insane department, Drs. Mitchell, Wood and Mills had clearly indicated the deadly peril from fire to which the institution and its inmates were constantly subjected After the fire many consultations were held between city councils or its committees, the board of guardians, the board of public charities, the consulting staff of the insane department, and members of the medical board, with the view not only of providing temporarily for the unhoused inmates of the hospital, but also to determine whether some measures of permanent value could not be taken for the relief both of the insane and sick poor at Blockley. Many of the patients were distributed to the various state hospitals; and many of the outwarders were sent temporarily to the house of correction, their places being taken by the insane who were still kept at the institution. The whole of the department with the exception of the two west wings, was destroyed by fire. In a short time these wings were put in condition for the reception of patients.

PATHOLOGICAL DEPARTMENT.

Dr. Agnew has briefly recorded a few facts with reference to the museum and pathological department of the hospital. As early as November 25, 1814, an effort was made to establish a hospital museum, and a few specimens were collected; in 1840, a building was set aside for a museum, but nothing practical was done until 1860, when a resolution was passed by the board of guardians to found a pathological museum, and in 1861, Dr. Agnew was appointed curator.

Work was begun by him and was carried on with decided practical results, as may be seen by consulting the printed Annual Statements of the board of guardians. In the Report or Annual Statement of the board for the year ending December 31, 1864, for example, Dr. Agnew gives a list of the morbid specimens which comprised the contents of the pathological museum at that time. This list contains 107 prepared specimens, the names of which are given, most of them evidently of value for clinical and pathological teaching. He also gives in the same volume another list of 14 specimens in process of preparation for mounting.

On April, 1866, an effort was made to add a microscopist to the staff of the hospital. At a meeting of the board of guardians, April 16, 1866, a communication, which had been made to the hospital committee of the board, was presented from Dr. Charles P. Tutt, one of the attending physicians. Dr. Tutt referred to the fact that his duties as attending physician occupied so much of his time, that he was unable to make microscopical examinations of the structures found or supposed to be diseased at the autopsies, which should be done to complete the history of the cases. He requested to be allowed to invite Dr. James Tyson to make such examinations for the hospital, and also, in consideration for his services that Dr. Tyson should be permitted to give a course of lectures on the microscope in the lecture room of the hospital. At the same meeting of the board of guardians, a communication was signed by Drs. F. F. Maury, Alfred Stillé, W. H. Pancoast, and other members of the medical board and presented, recommending Dr. Tyson for the position of microscopist. Dr. Agnew also sent a letter to the board strongly commending the project and advocating the election of Dr. Tyson. These communications were referred to the hospital committee, with instructions to report at the next meeting and on May 14, 1866, this committee reported in favor of appointing a microscopist, whose duty it should be to prepare a written account of such subjects as might be required by the attending physician. The committee also reported in favor of the microscopist having the use of the lecture room for his course of lectures. The report and resolutions were agreed to, and Dr. Tyson was elected microscopist. Dr. Agnew still continued curator.

In the Annual Statement of the board of guardians for the year ending December 31, 1867, appears the first report of Dr. Tyson as microscopist. He speaks of reports on the various subjects having been prepared, with drawings in many of the cases. These reports made in 1866 and 1867 were seven in number, and from their titles were evidently of great practical interest.

On October 14, 1867, Dr. Agnew resigned as curator, and, at the same meeting, Dr. William Pepper was elected in his place. Dr. Tyson continued to hold the position of microscopist until January 22, 1872, when he resigned and on February 26, 1872, Dr. R. M. Bertolet was chosen for the vacant position. November 22, 1871, Dr. Pepper resigned as curator, and Dr. Tyson was appointed curator and pathologist. For a time he held the two positions of curator and microscopist, until as stated, Dr. Bertolet succeeded him in the latter office. In March, 1872, Dr. Tyson was elected one of the visiting physicians of the hospital, but continued also as curator and pathologist until 1875.

In 1874, a catalogue of the specimens in the pathological museum was prepared conjointly by Drs. Tyson and Bertolet. This catalogue was prepared under unusual difficulties, as no attempt had been previously made to arrange, label and catalogue the specimens, some of which had been in the museum for years, while the nature of them had to be determined if possible without unsealing the jars or unmounting them. The total number of specimens was 322, as follows: Osseous 71; nervous 14; integumentary and connective tissue 4; digestive apparatus 71; respiratory 26; vascular 44; genito-urinary 70; unclassified tumors, 7; calculus, concretions, etc., 7.

In later years the valuable museum of the institution was allowed to degenerate, and most of the specimens mysteriously faded out of sight, but within a few years interest has been revived and many valuable specimens have been collected for the reorganization of the museum.

In the Annual Statement of the board of guardians for the year ending December 31, 1875, the name of Dr. Thomas B. Reed appears for the first time as microscopist. Dr. Bertolet during the same year had succeeded Dr. Tyson as curator. In 1876, Dr. Joseph Berens was appointed curator and pathologist, and the position of microscopist was apparently not filled. Dr. Berens continued until 1879.

In 1880, Dr. E. O. Shakespeare, already ophthalmologist to the hospital, was made curator, and Dr. H. F. Formad was appointed microscopist. Each of these gentlemen remained in these respective positions for several years. On October 30, 1882, however, Dr. Shakespeare was made pathologist, the office of curator apparently disappearing as a separate position. Dr. Formad continued microscopist in 1882, 1883, 1884, 1885 and 1886. In 1887 Drs. Shakespeare and Formad were both appointed pathologists and were assigned duty at different times, each taking half the year. In December, 1889, Dr. Formad was appointed pathologist, and Drs. J. Leffingwell Hatch and H. W. Cattell, assistant pathologists. At the same meeting the position of bacteriologist was created and to it Dr. Shakespeare was appointed.

According to the rules of 1890, the bacteriologist has charge, as a laboratory, of the upper floor of the dead house, except the north-east room. It is his duty to make investigations of infectious diseases in the hospital (using the hypodermic needle on the cadaver if necessary) and of hygienic questions which may be submitted to him by the bureau of charities or the medical staff. He serves without compensation, and acting with the sanction of the bureau and superintendent, can procure all the supplies necessary for the proper carrying out of his investigations, the cost of such supplies to be charged to the pathological item.

The first classes instructed directly in pathology at the Philadelphia Hospital were taught by Dr. J. Pendleton Tutt in 1865. Dr. Tutt, who died of typhoid fever contracted in the hospital, was a man of great energy, an indefatigable worker, thoroughly imbued with a scientific spirit. Dr. Tyson first taught classes in microscopical and pathological histology in the spring of 1871. Since this time many classes have been taught not only by the curator, mocroscopist and pathologist, but by various members of the attending staff. Dr. Formad has for many years given instructions in the hospital to the students of the University of Pennsylvania. It would be hard to estimate how much the pathological department of this hospital has done for the students of medicine, and through the presentation of specimens at societies, for the profession at large.

The resident physicians of the Philadelphia Hospital have long been recognized as among the best equipped men in the profession, particularly with reference to gross pathological work, and their frequent opportunities of making post-mortem examinations under competent physicians and pathologists have helped to give them this enviable reputation.

NEUROLOGICAL DEPARTMENT.

The neurological department of the hospital, which has now become co-extensive with the other great departments, had a slender beginning in 1877. Dr. Mills was appointed neurologist to the hospital and proceeded to establish a nervous department. The outwards were full of the richest material for the study of organic nervous diseases.

The wards for nervous diseases were started in the old wooden pavilions in the clinic yard. The number of patients at first was limited, and these were collected by Dr. Mills from the outwards, picking up here and there a case of hemiplegia, of sclerosis, or of some other form of organic nervous disease. Many such patients, in a deplorable condition were found, some of them in the cubbies or blind rooms. In the third-story of the men's outwards was also a room known as the "paralytic ward," in which were collected a number of helpless patients. This ward was included under the care of the neurologist, and after a long time its occupants were transferred to the pavilions. Gradually patients, both male and female, were added to the limited numbers first placed in the nervous wards, and as several of the pavilions were at that time unoccupied, no limit was put to the growth of the wards, until in 1890 the number of patients had reached two hundred and fifty or more.

The first arrangement was, that Dr. Mills should have charge of one-half of the whole number of patients admitted to the nervous wards, the care of the other half being distributed pro rata among the members of the medical staff on duty. In 1883, Dr. H. C. Wood was made an additional neurologist; and Drs. Mills and Wood remained in charge of the wards until 1887, when Dr. Roberts Bartholow was elected to succeed Dr. Wood. In 1887, the neurological department was reorganized upon a new basis, and its staff was now increased to four—Drs. Mills, Wood, Bartholow and Dercum. In January, 1888, Dr. Bartholow resigned, and Dr. James Hendrie Lloyd was chosen for the vacancy; later, in 1888, Dr. Wood also resigned, and Dr. Wharton Sinkler was elected to his place. When numerous changes were made in the medical board at the election in December, 1889, Drs. Mills, Dercum and Sinkler were re-elected, and Dr. C. H. Bradfute was added to the staff in place of Dr. Lloyd. In the autumn of 1890, Dr. Bradfute resigned, and in December, Dr. Lloyd was re-appointed to his former position on the staff.

When the re-organization of the nervous department took place in 1887, the entire insane department was included in its jurisdiction, the neurologists being also made visiting physicians to the insane department. This arrangement continued until 1890, when the neurologists continuing in charge of the nervous wards, were made consulting instead of visiting physicians to the insane department.

The brick pavilions occupied by the men's nervous wards, are among the cleanest, best lighted and ventilated in the entire hospital, a striking contrast to the original quarters of this department. At one end of one of the pavilions a large room has been partitioned off to serve as a laboratory and ward lecture-room, and in it lectures are frequently given to small classes. It is also used for electrical and other forms of treatment, as suspension, the application of plaster jackets, massage and Swedish movements.

Possibly no hospital in the world has better facilities for the study of organic nervous disease and insanity than are to be found in this department, which has been the fountain from which has issued much of the literature supplied by Philadelphians to neurology. Clinical lectures on nervous diseases were about 1878 assigned to the neurologists for three months in the year, in the regular medical hour on Wednesday and Saturday, and such lectures have been delivered ever since. In addition, many classes from the University of Pennsylvania, the Philadelphia Polyclinic, and other institutions have been instructed in the nervous wards by various members of the staff.

One after another, as stated in the historical memoranda of the almshouse, the wooden pavilions were torn down, the first in 1884, when the women's nervous wards were removed to the lower floor of the women's outwards.

OPHTHALMOLOGICAL DEPARTMENT.[1]

In the Annual Statement of the guardians for the fiscal year ending December 31, 1861, the first synopsis of the ward reports may be found. In this classification there is no mention of separate wards for either eye or skin diseases. In the Annual Statement for 1862, Dr. J. L. Ludlow, secretary of the medical board reports that in the eye ward, 99 were treated, 31 cured, 47 relieved, and no deaths. The attending staff of the hospital was at this time divided into surgeons, physicians and accoucheurs. Among the surgeons were Drs. Samuel Gross, D. Hayes Agnew, R. J.

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[1] Notes on the ophthalmological and dermatological departments were furnished by Dr. G. E. deSchweinitz.

Levis and R. S. Kenderdine, and the duty of attending to the cases admitted for diseases of the skin and eye devolved upon these members of the staff. In 1863, fifty-seven cases were admitted, and seventy-three treated in the eye ward. After this date the reports are fuller, and contain each year tables indicating the various surgical and medical affections which come under treatment, the eye and skin diseases respectively comprising a table.

In 1877, Dr. E. O. Shakespeare was elected ophthalmologist. Previous to that time there was no special eye service in the hospital, although a separate ward for diseases of the eye existed for men and women. During the year, 111 cases were treated in the men's eye ward; mention is not made, however, in the classification whether separate wards were used for women, although this is known to have been the case. This separate classification does not appear to have been considered in the reports until 1878, when the sexes were divided. Before the election of Dr. Shakespeare, by common consent of those on duty, Dr. William Pancoast had treated all diseases of the eye. From 1887, when the eye department as a special and independent service was created, Dr. Shakespeare remained on duty, having the sole charge of this department until June, 1887, when an additional ophthalmological position was created, and Dr. G. E. deSchweinitz elected as ophthalmologist. From 1887 to December, 1889, during several prolonged absences of Dr. Shakespeare, his duties were performed by different members of the visiting surgical staff on duty at the time. In the summer of 1888, this work devolved especially upon Dr. Charles Hermon Thomas.

The men's eye ward was originally situated on the second floor of the main building next to the venereal ward, and continued to occupy this floor until the wooden pavilions, formerly occupied by nervous patients, were torn down, and the new brick structures, which have taken their places, were erected. The second floor of the first building was carefully constructed for the purposes of an eye ward, and the transfer made during November, 1888. This ward consists of a long room containing thirty-two beds, lighted by windows covered in by a movable curtain, whose adjustment suitably regulates the amount of light. At the western end of the ward, in addition to hot and cold water, bath-room attachments, closets for medicines, dressings, etc., is a large dark room, especially arranged for ophthalmoscopic purposes. The near proximity of this dark room to the nervous wards below and to the southern side of it, renders the study of medical ophthalmology easy of execution. In addition to the facilities afforded by the new ward for the treatment of various eye diseases, either end of it can be screened, and affords an excellent operating room, sufficient steady northern light being readily accessible through the high windows.

The women's eye ward has always been on the women's surgical floor. In 1886, it occupied ward 4, and was divided by a partition into two apartments for white and colored patients respectively. In 1887, the occupants were moved into the present women's surgical dining room, and in the latter part of the same year, or early in 1888, they were transferred into the present children's ward. In November, 1888, the cases were once more moved to the quarters which they now occupy, namely: ward 4 on the women's surgical floor. This has been especially prepared for the reception of eye cases, the windows and doors having been curtained to regulate the light. At the present time, in addition to the eye cases, one-half the ward is devoted to the reception of patients suffering from diseases of the skin.

From June, 1887, to December, 1889, Dr. Shakespeare and Dr. de Schweinitz were the ophthalmologists of the hospital, each serving alternate terms of three months. In December, 1889, Dr. Shakespeare was succeeded by Dr. G. M. Gould. Dr. Shakespeare was appointed bacteriologist. Since this date, Dr. de Schweinitz and Dr. Gould have continued as the ophthalmologists, serving, as was before the case, alternate terms of three months each.

DERMATOLOGICAL DEPARTMENT.

Previous to 1887, there was no special dermatological service, but cases in the skin ward, as those of the eye ward, were apportioned to the members of the visiting staff. In 1870, the late Dr. Maury had charge of this ward, and from that date to 1877 Dr. Duhring was practically in charge, becoming full dermatologist in that year, by election by the board of guardians. Dr. Duhring continued in sole charge of this service until June, 1887, when an additional dermatological position was created, and Dr. Henry W. Stelwagon was chosen to conduct the service. From this time Dr. Duhring and Dr. Stelwagon were the dermatologists of the hospital until December, 1889, when Dr. Duhring was succeeded by Dr. Cantrell.

The dermatological cases are divided according to the sexes into two wards. The ward for the male patients is on the second floor of the hospital building, and the quarters are those which have been occupied from the date of the institution of this service. The diseases of the skin occurring among women are treated in half of the ward on the women's surgical floor, which is set apart for diseases of the eye.

LARYNGOLOGICAL DEPARTMENT.

On February 24, 1890, a committee reported on behalf of the medical board to the president of the board of charities and correction, that the number of cases needing the services of a specialist in throat diseases was sufficiently great to make it important to add two laryngologists to the medical staff. Shortly afterwards Drs. C. Jay Seltzer and George Morley Marshall were appointed laryngologists.

THE MARY SHIELDS' ALMSHOUSE FUND.[1]

Mrs. Mary Shields, who died October 8, 1880, bequeathed to the city of Philadelphia, one twelfth part of her estate "to relieve and make more comfortable the sick and the insane poor at the almshouse in Philadelphia."

In November, 1883, the board of directors of city trusts, after conferring with the board of guardians of the poor, adopted a plan and regulations for the disposal of the fund. This plan required the appointment of "a physician of at least five years standing" to be superintendent of the "Mary Shields' Almshouse Fund," whose duty it should be to visit the almshouse frequently, and keep himself informed with regard to all matters relating to the sick and insane poor, to communicate as necessary with the guardians of the poor and their officers and agents, make estimates of necessary expenditure, etc. Dr. W. H. Wallace was appointed to this position.

The accumulated income was applied to the erection of a new kitchen building with complete cooking apparatus of the best character. This was nearly finished at the time of the disastrous fire on the night of February 12, 1885, after which the work was rapidly pushed and completed.

A kitchen was built and furnished for the general hospital in 1886, and during 1890, part of the cost of a third kitchen has been paid.

The income of the fund has been used to supply, as far as possible, such things as were necessary to the comfort and welfare of the patients, but which were not furnished in the usual way by the hospital authorities. Some of the articles supplied at various times have been an organ, a piano, banjos, accordeons, etc., settees and lawn seats, large water-coolers for the wards, rocking chairs, a large number of autotype engravings (framed and hung), numerous games of all kinds—cards, dominoes, checkers, chess, backgammon, etc., for indoor use; patterns and material for embroidery, crocheting, etc., for female patients; and for outdoor use such games as croquet, lawn tennis, football.

Subscriptions are made annually to numerous periodicals, the best of the illustrated monthly and weekly publications, a total amount of about 1100 numbers per year, and distributed to the patients. A carefully selected library, suited to the needs and capacities of the class of patients for whose use they are intended, was presented to the insane department, and to it, additions have since been made. Spectacles, water, and air beds, air cushions, bed rests and commodes have been supplied, and a large number of rolling and reclining chairs furnished to the insane department and to the general hospital.

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[1] Notes furnished by Dr. W. H. Wallace, superintendent of the fund.

On Christmas day, Thanksgiving and other holidays, additions are made to the diet of the patients in the department for the insane, and occasional treats of fresh fruit in season, strawberries, peaches, apples, watermelons, bananas, cranberries; turkey and mince pie for Christmas; turkey and pumpkin pie for Thanksgiving; oysters and plum pudding for Washington's birthday; lemons for the sick as required.

The general meeting room or entertainment hall was furnished with a large stage and furniture, chairs, tables, etc., including a pulpit for religious services and seats for the patients. On the completion of this on January 1, 1890, an entertainment was given, including a punch and judy show, an orchestral concert, etc., with cake and ice cream.

THE TRAINING-SCHOOL FOR NURSES.[1]

One of the memorable events in the history of the Philadelphia Hospital was the establishment of the Training-School for Nurses by Miss Alice Fisher, and her friend and associate, Miss Edith Horner. This school was founded in the autumn of 1884. Mr. Edward F. Hoffman, president of the board of guardians and Mr. R. C. McMurtrie, Mr. James Stewart, Dr. Thomas Biddle, Mr. John Huggard, and others, were earnest and energetic in support of the movement.

At the stated meeting of the board of guardians, September 24, 1883, a special committee was appointed with reference to a proposed training school for nurses;

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[1] Although the training-school for nurses was not established until 1884, some years prior to this time nurses from the training-school of the Woman's Hospital of Philadelphia had served at several periods in the hospital wards. At the meeting of the board of guardians, December 27, 1875, the managers of the Woman's Hospital appealed to the board to set apart one of the wards of the Philadelphia Hospital to be attended by a corps of nurses from their school. This communication was at first laid on the table, but subsequent to this time received favorable consideration, and arrangements were made to give six months of the novitiate instruction of the training-school in the wards of the Philadelphia Hospital. Some interesting facts in regard to this service are to be learned from the Reports of the Training-School of the Woman's Hospital for 1876–77–78.

For the suggestion that prompted this action, for the liberal offer of assistance that alone made it possible to carry out the plan, the managers express themselves indebted to Mrs. Pauline E. Henry, a lady of Germantown, deeply interested in nurse training. Owing to unexpected delays in finishing the pavilions of the hospital, these nurses did not enter into active service until July 28, 1876, when an efficient corps went on duty under the supervision of a head nurse appointed by the Woman's Hospital, subject to the direction of the physicians in charge at the Philadelphia Hospital. The woman's training-school had the care of four wards with fifty beds. Of the class of 1876, Amanda Taylor acted as head nurse; in 1877, Ellen Doubleday was head nurse.

Mrs. Harriet L. Clute of Blackwell's Island, N. Y., training school, was invited to visit the Philadelphia Hospital, and it was recommended, if possible, to engage her services to establish a training school at a salary not exceeding $1,000 per annum. This effort was not successful.

At the meeting April 8, 1884, a long letter was read from the hospital committee on the subject of the training school for nurses. The object designed was to procure an efficient staff of competent nurses; a head nurse was desirable. It was also important that the vacancies when occurring should be filled by suitable persons, who make nursing a profession and occupation. Experience in New York had shown the great advantage of trained nurses. It was proposed to commence with twelve young women.

Among the new rules adopted at the stated meeting, March 24, 1884, was one that a competent and skilled head nurse should be appointed to have charge of the nurses and attendants, and that it should be her duty to have competent nurses and attendants under her, and to see if they diligently fulfilled their duties.

July 28, 1884, at the meeting of the board of guardians, the president, Mr. Hoffman, stated that for some time past efforts had been made to find a suitable person for head nurse of the proposed training-school. Mr. George W. Childs and Mr. Anthony Drexel having interested themselves in the matter, had submitted the name of Miss Alice Fisher, superintendent of the training-school at Birmingham, England, as one competent to fill the position, having first-class credentials from prominent physicians in England. Mr. Stewart offered a resolution, which was adopted, that the thanks of the board be tendered to Messrs. George W. Childs and Mr. Anthony Drexel, for their generous assistance in introducing a training-school for nurses in the institution, and that the president of the board be directed to notify Miss Fisher that the board would engage her as a superintending nurse.

The nurses sent from the Woman's Hospital to the Philadelphia Hospital were as follows:—

In 1876—Maggie H. Paxton, Martha M. Waldron, Maggie T. Miller, Sarah F. Harper, S. Jennie Philbrick, Anna Young, Lettie Hawthorne, Maggie C. Money, Lizzie J. McEwen and Amanda Taylor. In 1877—Ellen Doubleday, Emma Putnam, Lucy I. Lothrop, Anna M. Barkley, Anna P. Atkinson, Mary J. Deemer, Clara Hannum, Sarah Ann Haines, Jane McClure, Louise Mezger and Ann Norton. In 1878—Cora Florman, Lizzie Ettinger, Mary Bartley, Anna R. Bunting and Fanny May.

From "The College Story," by Rachel L. Bodley, A.M., M.D., we take the following interesting incident:—

"In 1856, Dr. Elizabeth G. Shattuck, a graduate of the Woman's Medical College of Pennsylvania, of the class of 1854, after vainly seeking access to the wards of the different hospitals of the city, in the capacity of physician—in order to more thoroughly prepare herself for practical work—applied for the situation of head nurse in the Philadelphia Hospital. This she obtained, the immediate care of the women's wards being assigned her. For seven years she served in this laborious position, and was about to leave it to occupy the chair of physiology and hygiene, and the post of resident physician at Vassar College, to which she had been appointed, when she was smitten with a fever at the time of the epidemic in the wards, and died an employee in Blockley Hospital, January 28, 1865."

In England Miss Fisher had held the appointments of lady superintendent of Addenbrooke's Hospital, Cambridge, the Radcliffe Infirmary Hospital, and the General Hospital, Birmingham. She was the daughter of an English clergyman of high position, and was well known for her literary as well as for her philanthropic work. She studied at the training school of old St. Thomas' Hospital, London. Soon after her election she furnished the board with a plan for the organization of a training school, and also with rules for the government of nurses in the hospital. She was further authorized to impart instructions to such applicants as were found competent, said instruction to be of no cost to the institution.

Miss Edith Horner came with Miss Fisher from England, and became her chief assistant in the hospital. She had acted as an assistant to Miss Fisher in two English hospitals, and had distinguished herself as a nurse in the Zulu war, receiving for this service the Victoria Cross. Miss Horner became engaged to Gen. Joseph R. Hawley, senator from Connecticut, having made his acquintance on a voyage to England, where she went on a visit to her family. Gen. Hawley was married to Miss Horner in St. Clement's church, Philadelphia, November 15, 1888, in the presence of a distinguished company.

Miss Fisher instituted many reforms. She possessed the qualities important in one at the head of a work requiring executive ability; she impressed her personality upon everything to which she put her hand. At regular intervals she gave practical lectures to the nurses. Invitations were sent to ladies, doctors, nurses and others throughout the city, and often large audiences were present at these lectures. Miss Horner rendered invaluable assistance in the work of the school.

At the meeting of the medical board January 5, 1885, the first lectures to the training school by members of the medical board were arranged for by Drs. Tyson, White and Keating. Since this time regular courses of lectures have been delivered by members of the different staffs.

During the fire at the insane department, Miss Fisher and her assistants did good work in taking care of the insane women and moving them from their endangered quarters. She signalized herself also by organizing a hospital service at Plymouth, Pennsylvania, during a disastrous typhoid epidemic in the spring of 1885.

Miss Fisher remained at the head of the training school for nurses until her death, which occurred June 3, 1888, less than four years after she came to this country. She had suffered for years with cardiac disease, and died after a short illness from an acute exacerbation, although she had been sick for many months with rheumatism. She was buried in the beautiful Woodlands cemetery which adjoins on the west the hospital for which she did such noble work. The board of charities and correction adopted a memorial appreciate of the esteem and veneration in which they held Miss Fisher, and the medical board also adopted resolutions of tribute to her memory. On May 28, 1889, commemorative services were held in the hospital, in the reception room of the nurses' department. An oil painting of Miss Fisher, by Miss Alice Barber, was presented by a number of her friends, to the training-school.

July 1, 1888, Miss Marion Emily Smith passed the examination, and was appointed chief nurse in place of Miss Fisher. Miss

Smith had served one year with Miss Fisher in the Birmingham General Hospital, England; was one of the first pupils and graduates of the Philadelphia Hospital school, where she served for eighteen months, and for two years after this was chief nurse at the Pennsylvania Hospital.

Before the advent of Miss Fisher and the new training-school, the nurses and attendants of the hospital had no special qualifications for their work—at least none at the time of their appointment. They were often appointed as the result of personal or political influence. Even a good training-school cannot manufacture to order good nurses, but such a school can do much toward making those who have the natural qualifications better fitted for their vocation, and can even do much with the unfit by systematic education. The training-school of the Philadelphia Hospital has wrought a wholesome revolution in nursing at Blockley. Its establishment met with some opposition, but this was not persistent. Public-spirited citizens, not connected medically or otherwise with the hospital, have interested themselves in the school. Notably among these was Mr. George W. Childs, who offered a gold medal to the nurse graduating with the greatest distinction. This was first won by Miss Roberta M. West, who is now chief assistant to Miss Smith.

Miss Smith, in the Annual Report of Department of Charities and Correction for 1889, says:—

> "During the past year 45 nurses were graduated. There are at present on duty 95; of these 8 are permanent head nurses and 87 are pupils. The school can now claim 159 graduates.
>
> "Of those who have charge of other hospitals, either as superintendents or chief nurses, the following is a list:—

	Supt.	Chief Nurse.
University of Pennsylvania	1	0
Presbyterian, West Philadelphia	0	1
Orthopedic, Philadelphia	1	1
Municipal, Philadelphia,	0	1
Home for Incurables, West Philadelphia	0	1
Polyclinic, Philadelphia	0	1
Bradford, Pennsylvania	1	0
Allegheny, Pennsylvania	1	1
Reading, Pennsylvania	0	1
Birmingham, Alabama,	1	2
San Diego, California	0	1
Meadville, Pennsylvania	1	0
Sanitarian, Washington	0	1

Since the publication of this list graduates of the school have been appointed to several other important positions.

In his last report to the mayor, president Laughlin, of the department of charities and correction, presents some striking facts and figures to show the beneficial effects of the system of trained nurses at Blockley. Under the former system the mortality from puerperal fever was .04523; under the present it is .00536, or less than one-eighth.

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